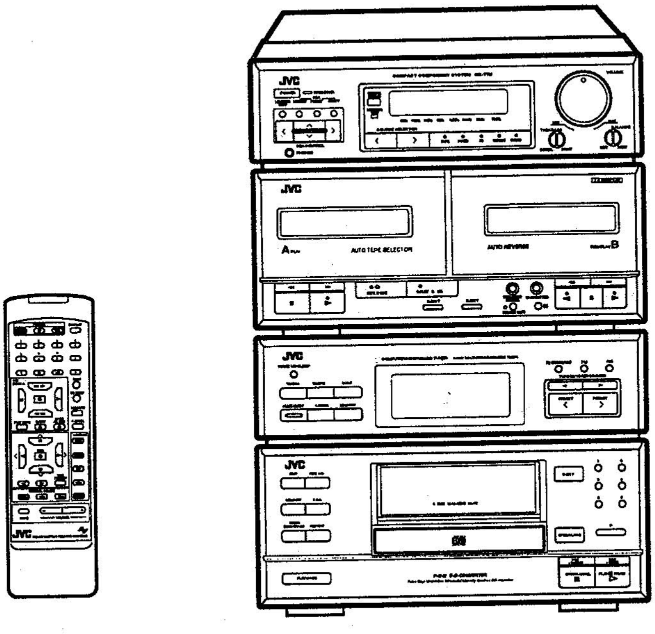
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

CA-MX77MTN



COMPACT disc DIGITAL AUDIO

For the explanation of ICs, the disassembly and the adjustment procedures, we issued the following service manuals.
Please use the manuals with this one when servicing.

Component

Compact component (CA-MX77MTN) is a unit composing of the following units.

Model No.	Unit No.	Service Manual No.
CA-MX77MTN	DX-MX77MTN (Amplifier/Deck)	20335
	XT-MX77MTN (CD/Tuner)	20336

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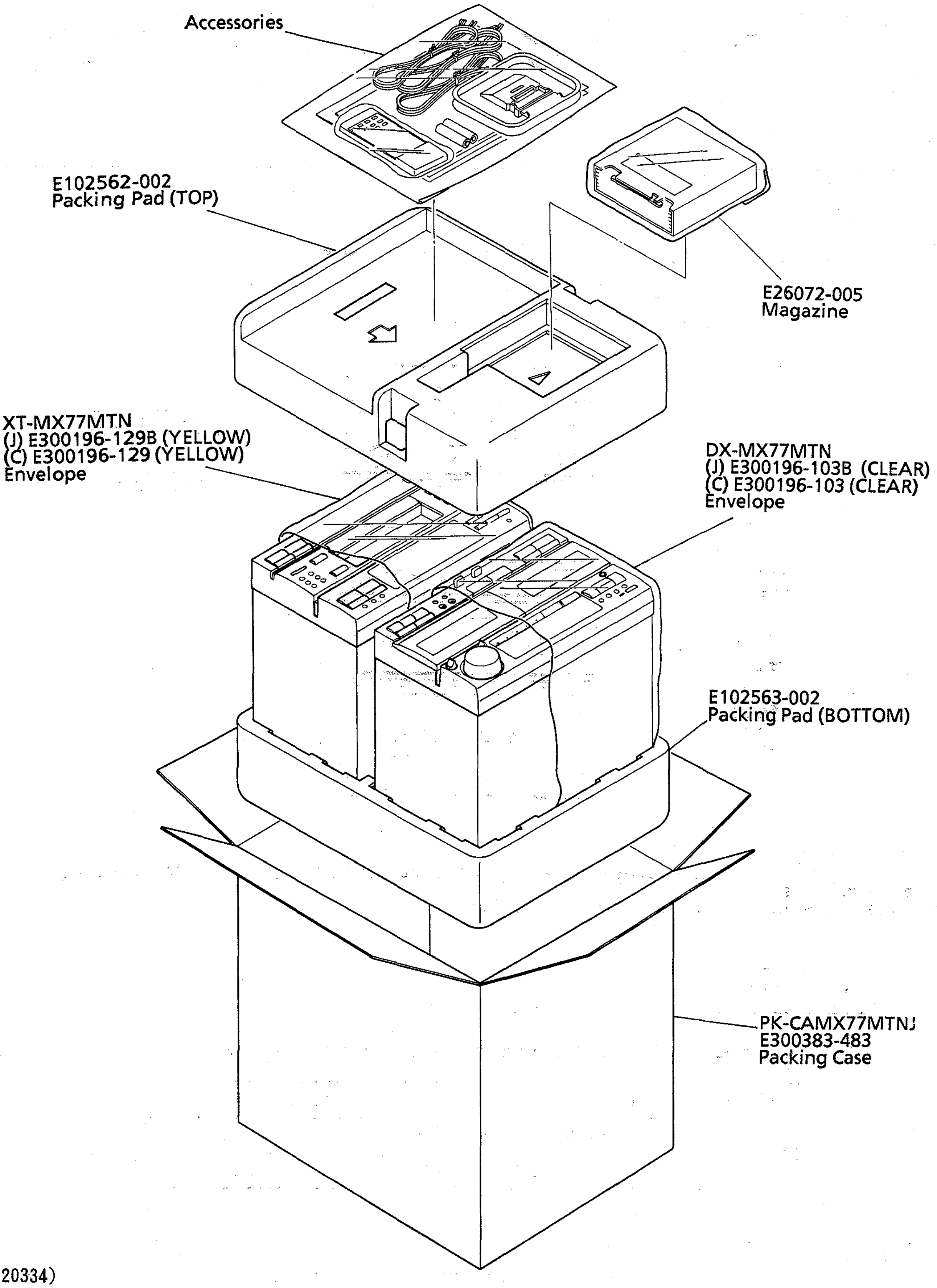
No. 20334
Mar. 1992

Packing Materials and Part Numbers

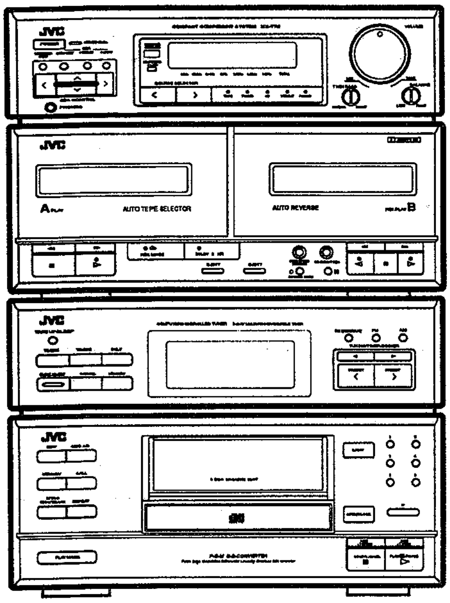

Accessories
E102562-002
Packing Pad (TOP)
E26072-005
Magazine
XT-MX77MTN
(J) E300196-129B (YELLOW)
(C) E300196-129 (YELLOW)
Envelope
DX-MX77MTN
(J) E300196-103B (CLEAR)
(C) E300196-103 (CLEAR)
Envelope
E102563-002
Packing Pad (BOTTOM)
PK-CAMX77MTNJ
E300383-483
Packing Case

■ Accessories

⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1843A	Instruction Book	1		J
	E30580-1844A	Instruction Book	1		C
	E66416-003	Envelope	1		J
	BT-20047F	Warranty Card	1		J
	BT-20108A	Service Information	1		J
	QPGA020-02505	Envelope	1		C
	BT-20025K	Warranty Card	1		C
	QPGA025-03505	Envelope	1		C
	QPGA025-03505B	Envelope	1		J
	BT-20044G	Safety Information Sheet	1		J
	BT20071A	SVC Center List	1		C
	EWP101-008	Speaker Cord	2		
	EWP502-005K	Built in Antenna	1		
	EQB4001-015	AM Loop Antenna	1		
	RM-SEMX77MU	Remote Control Unit	1		
	R03BPA-2STSA	Battery	1		
	E43486-410B	Caution Sheet	1		

The Marks Designated Areas

J ·················· the U.S.A.
C ················· Canada
No marks indicates all areas.



Thank you for purchasing thus JVC Compact Component Stereo System. We hope it will be valued addition to your home, giving you years of enjoyment.

Be sure to read this instruction manual carefully before operating your new stereo system. Here you will find all the information you need to set up and use the system.

For questions that cannot be answered in the manual, please contact your dealer.

IMPORTANT CAUTIONS

1. **Installation of the unit**
- Select a place which is level, dry and neither too hot nor too cold (between 5°C and 35°C).
- Leave sufficient distance between it and your TV.
- Do not use it in a place subject to vibrations.

2. **Power cord**
- Do not handle the power cord with wet hands!
- When unplugging from the wall outlet, always pull the plug, not the power cord.

3. **Malfunctions, etc.**
- There are no user serviceable parts inside. If anything goes wrong, unplug the power cord and consult your dealer.
- Do not insert any metallic object into the receiver.

About This manual

This instruction manual will help you with the following:
- Connecting the components of the system, installing the antennas, and connecting other components such as a turntable or VCR to the system.
- Learning the operations of the components of the system (Amplifier, CD Player, Tape Deck, Tuner and the Remote Controller).
- Learning additional functions of the system, such as using the timers, using the SEA graphic equalizer, presetting broadcast stations in memory, and using the various recording capabilities.
- Trouble-shooting, if a problem should occur.

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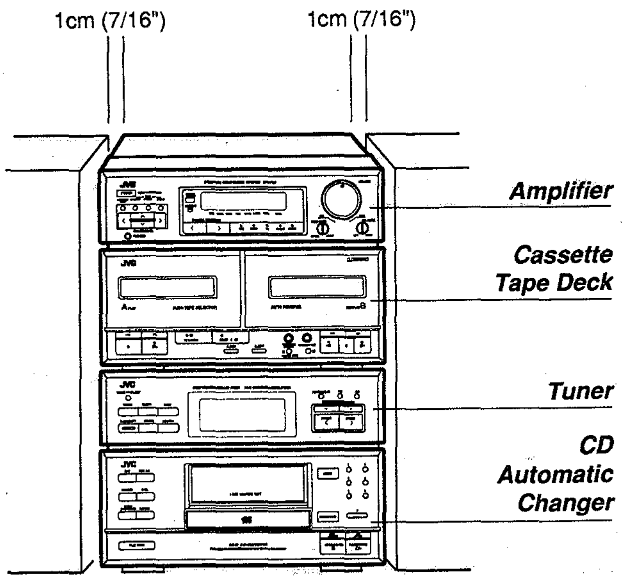
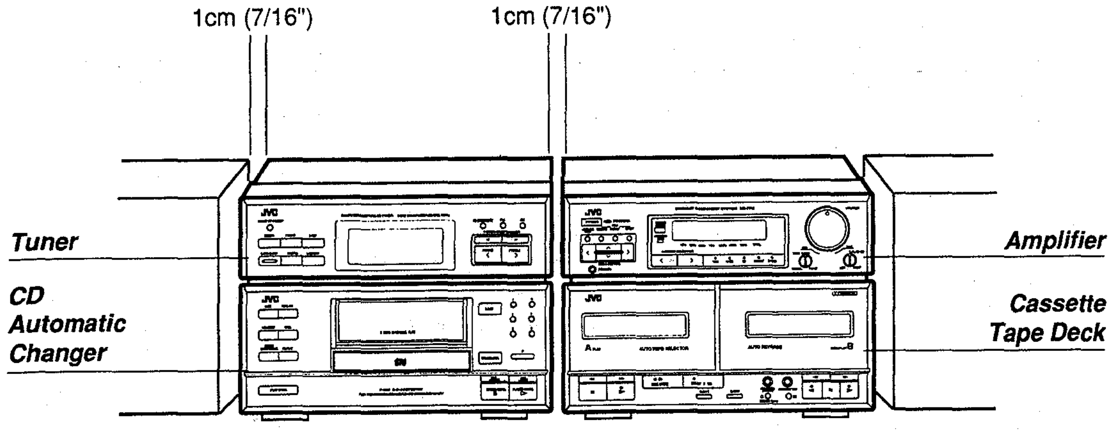
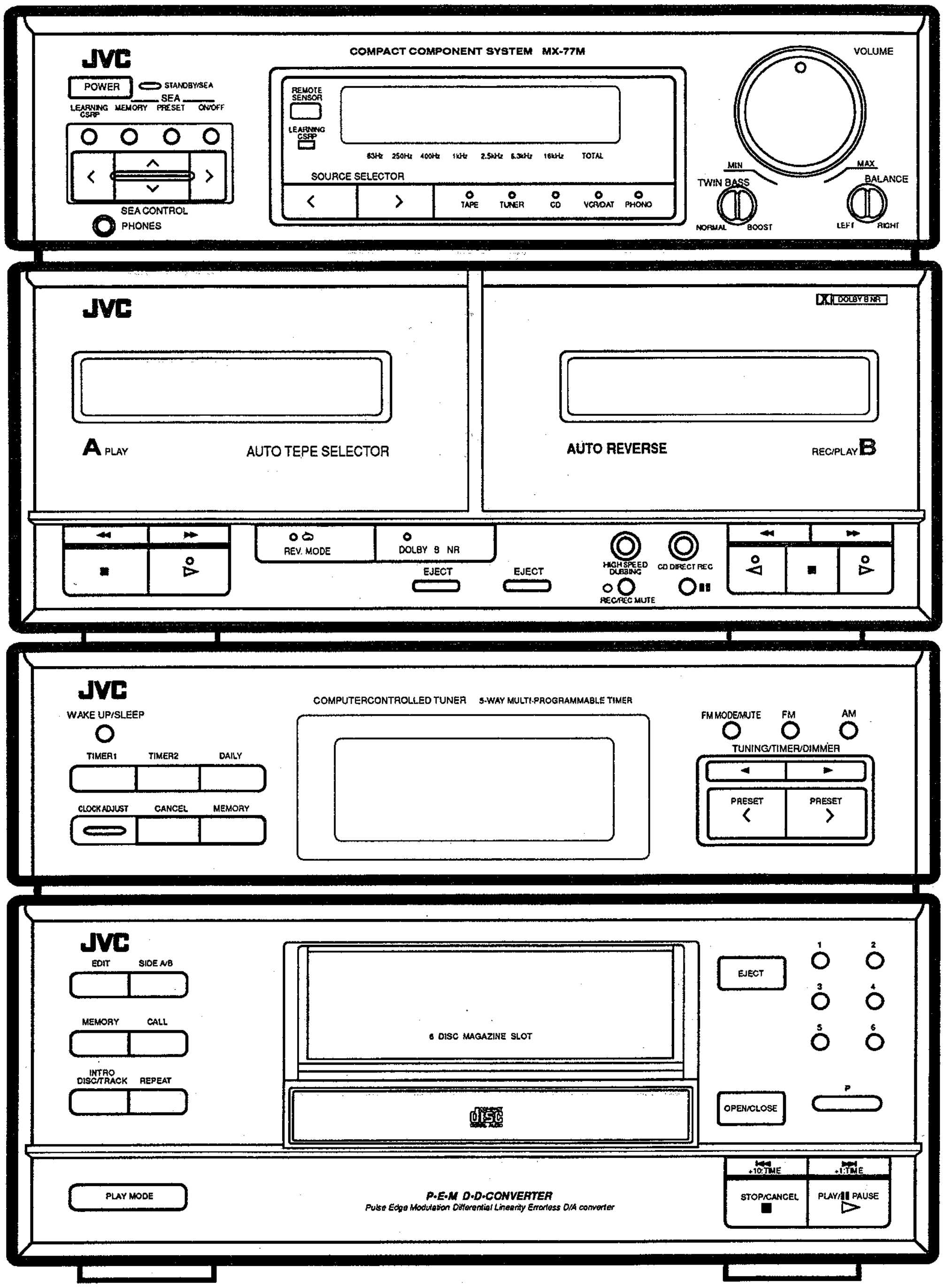
Laying Out the System

There are two ways to lay out the system as shown above:

- Leave a space of at least one cm on both sides of the amplifier and keep the back at least 10 cm from the wall for ventilation.
- If the system does not work well or needs repairing, please take all the components with you to the nearest agent.


1cm (7/16")
1cm (7/16")
Amplifier
Cassette Tape Deck
Tuner
CD Automatic Changer


1cm (7/16")
1cm (7/16")
Tuner
CD Automatic Changer
Amplifier
Cassette Tape Deck


JVC
COMPACT COMPONENT SYSTEM MX-77M
VOLUME
POWER
STANDBY/SEA
SEA
LEARNING CSRP
MEMORY
PRESET
ON/OFF
SEA CONTROL
PHONES
REMOTE SENSOR
LEARNING CSRP
63Hz 250Hz 400Hz 1kHz 2.5kHz 6.3kHz 16kHz TOTAL
SOURCE SELECTOR
TAPE
TUNER
CD
VCR/DAT
PHONO
MIN
MAX
TWIN BASS
NORMAL
BOOST
BALANCE
LEFT
RIGHT
JVC
DOLBY B NR
A PLAY
AUTO TEPE SELECTOR
AUTO REVERSE
REC/PLAY B
REV. MODE
DOLBY B NR
EJECT
EJECT
HIGH SPEED DUBBING
CD DIRECT REC
REC/REC MUTE
JVC
WAKE UP/SLEEP
COMPUTERCONTROLLED TUNER
5-WAY MULTI-PROGRAMMABLE TIMER
TIMER1
TIMER2
DAILY
CLOCK ADJUST
CANCEL
MEMORY
FM MODE/MUTE
FM
AM
TUNING/TIMER/DIMMER
PRESET
PRESET
JVC
EDIT
SIDE A/B
MEMORY
CALL
INTRO DISC/TRACK
REPEAT
6 DISC MAGAZINE SLOT
EJECT
1
2
3
4
5
6
OPEN/CLOSE
P
PLAY MODE
P·E·M D·D·CONVERTER
Pulse Edge Modulation Differential Linearity Errorless D/A converter
+10 TIME
+1 TIME
STOP/CANCEL
PLAY/II PAUSE

Amplifier

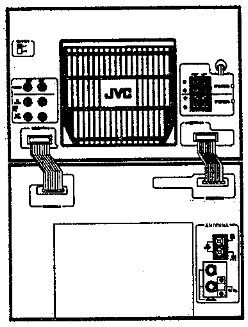
Cassette Tape Deck

Tuner

CD Automatic Changer

Getting Started

Connecting the System Components



Connection Notes

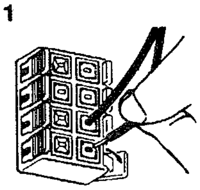
- Besore you plug ing the system, you must make all the necessary connections.

Connecting the Two stereo Components

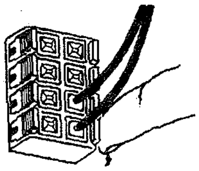
- Connect the Amplifier/Tape Deck component and the Tuner/CD Automatic Changer component.

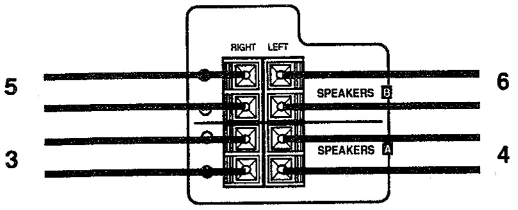
Connect the two ribbon cables (CONNECTOR A and B) from Tuner/CD Automatic Changer component to the Amplifier/Tape Deck component.

1



2





Connecting The Speakers

Speaker Terminals
Connect the speakers to the Amplifier/Tape Deck components as follows:

1. **When connecting speakers, open each terminal and insert the end of the speaker wire as shown.**
2. **Close the terminals as shown to clamp the speaker wires in place.**

SPEAKERS A
Connect the Full Range Speakers to the SPEAKERS A terminal on the Amplifier/Tape Deck as follows.

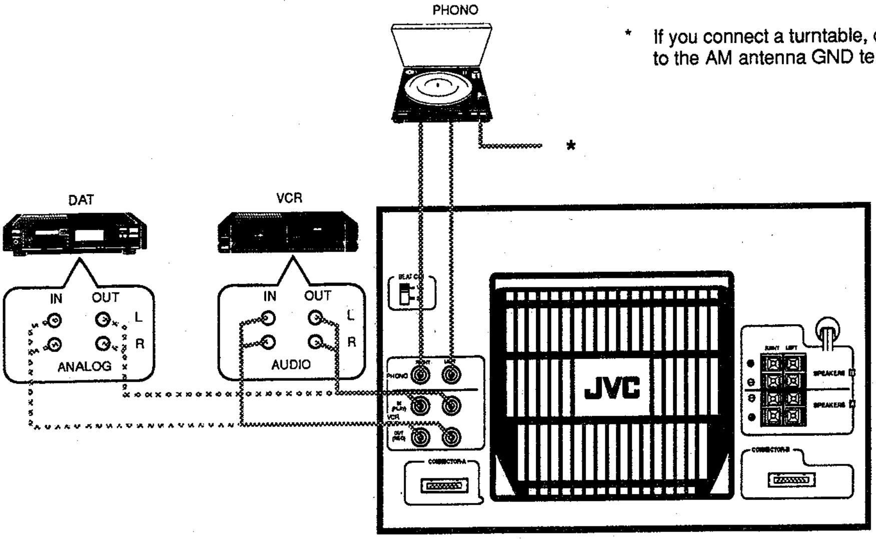
3. **Connect the gray (+) and blue (–) terminals of the right-side Full Range Speaker to the lower gray (+) and blue (–) terminals marked RIGHT on the Amplifier/Tape Deck.**
4. **Connect the gray (+) and blue (–) terminals of the left-side Full Range Speaker to the lower gray (+) and blue (–) terminals marked LEFT on the Amplifier/Tape Deck.**

SPEAKERS B
Connect the Subwoofers to the SPEAKER B terminal on the amplifier as follows.

5. **Connect the red (+) and black (–) terminals of the right-side Subwoofer to the upper red (+) and black (–) terminals marked RIGHT on the amplifier.**
6. **Connect the red (+) and black (–) terminals of the left-side Subwoofer to the upper red (+) and black (–) terminals marked LEFT on the Amplifier/Tape Deck.**

- Using speakers with the correct impedance. The correct impedance is indicated on the rear panel.

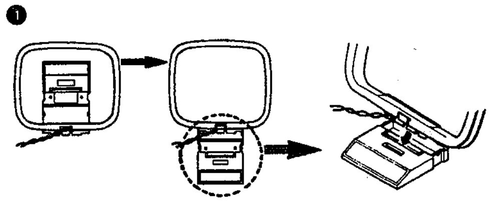
Connecting Other Components

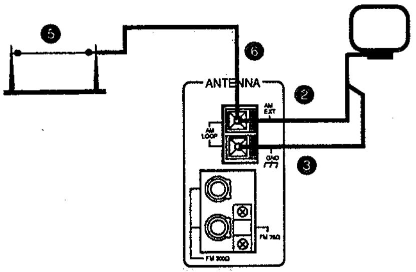


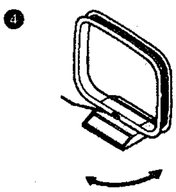
The amplifier can also be connected to a Turntable (PHONO), a Video Cassette Recorder (VCR) and a Digital Audio Tape (DAT) Deck.

* If you connect a turntable, connect the ground wire from the turntable to the AM antenna GND terminal.

/AM Antenna Connections







AM Loop Antenna

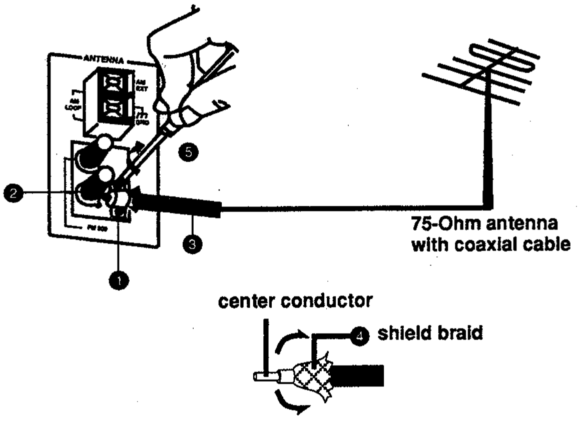
1. **Fold out the loop from the antenna base.**
2. **Connect one antenna wire to one of the AM LOOP terminals.**
3. **Connect the remaining antenna wire to the other AM LOOP terminal.**
   Note: These two terminals open and close the same way as the speaker terminals.
4. **Adjust the loop antenna as needed to get the best reception.**

AM Outdoor Antenna

If your AM broadcast reception is unsatisfactory, you should connect an AM outdoor antenna in addition to the loop antenna.
Important! The AM loop antenna must be installed to receive AM broadcasts. Do not disconnect the loop antenna when installing an outdoor antenna.

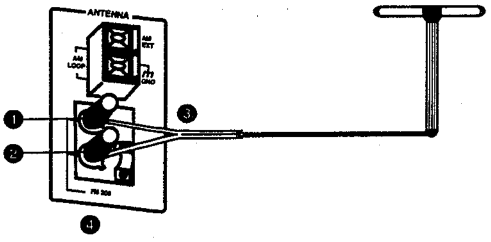
5. **Install a single vinyl-covered antenna wire outdoors. The antenna wire should be about 16 to 40 feet (5 to 12 meters) long.**
6. **Connect one end of the antenna to the AM loop terminal marked AM EXT.**
   Note: Except for the connection, make sure that no uninsulated antenna wire touches the rear panel. Otherwise, you might not receive AM broadcasts.

FM Antenna Connections



FM 75-Ohm Antenna Cable

1. **Loosen the screws holding the bracket.**
2. **Loosen the cap of the 300/75-ohm terminal.**
3. **Insert the round antenna cable through the bracket from below.**
4. **Make sure that the shield braid on the cable contacts the 300/75-ohm terminal.**
5. **Tighten the bracket screws and the cap on the 300/75-ohm terminal.**



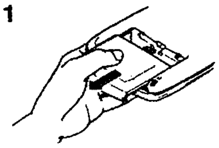
FM 300-Ohm Antenna Cable

6. **Loosen the cap on the 300/75-ohm terminal.**
7. **Loosen the cap on the 300-ohm terminal.**
8. **Connect the two conductors of the antenna cable to the 300/75-ohm terminal and the 300-ohm terminal.**
9. **Tighten the caps on both terminals.**
   Note: Whether you use the 75-ohm or 300-ohm cable, make sure the antenna conductors do not touch any other terminals on the rear panel. This could cause poor reception.

Note:
- Make sure the antenna conductors do not touch any other terminals, connecting cords and power cord on the system.
  This could cause poor reception.

Installing Batteries in the Remote Controller

1



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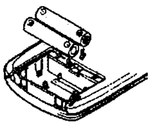

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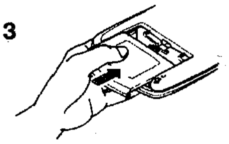


1. **Remove the battery compartment lid.**
   Press the lid and slide it in the direction of the arrow.
2. **Insert the batteries.**
   Use two UM-4/AAA/R03 size batteries.
   Make sure the + and – polarities on the batteries and compartment are the same.
3. **Attach the lid.**
   Press the lid and slide it in the direction of the arrow.

Note:

- Batteries installed incorrectly may burst of leak. Pay attention to the following:
  - When the Remote Controller is not in use for a long period of time, remove the batteries.
  - Do not mix old and new batteries.
  - Do no mix batteries of different types, even if their shapes are the same.
  - When batteries become weak, the operating distance of the Remote Controller is greatly reduced and you will need to replace the batteries.

AC power connection

Caution: To prevent electric shock, turn all stereo components off before you install or remove power cords.

Important! Before you plug the power cord into an outlet, make sure that all stereo components are connected correctly.

Using the Amplifier

Using the Power Switch

1. **Press the POWER switch to turn on the stereo system.**
   When the POWER switch is not pressed and the power cord is plugged in, the stereo is in STANDBY mode and STANDBY/SEA indicator lights. In STANDBY mode, the stereo uses a small amount of power (12 watts) for the clock, memory contents, and any timers which are set.
2. **To disconnect power completely, unplug the power cord.**

Adjusting the Volume controls

Volume
Turn the VOLUME knob to adjust the volume level of the speakers or headphones.

- Connect headphones to the PHONES jack on the amplifier for listening through headphones. No sound will be produced from the speakers.

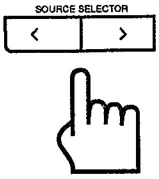
Important! There is danger of your hearing being affected if you listen to your sound system at an excessively high volume level. You must be especially aware of this danger when using headphones.

Balance
Turn the BALANCE knob to adjust the left-and-right sound balance in the speakers or headphones.

Twin Bass
Turn the TWIN BASS knob to adjust the output level of the Subwoofers. Turning this control toward BOOST will boost the low frequencies.

Selecting the Source

Select the SOURCE you want to listen to with SOURCE SELECTOR button.



- Each time you press the SOURCE SELECTOR button, the source changes to the next one in the sequence, and the corresponding SOURCE indicator lights.

  ↔ TAPE ↔ TUNER ↔ CD ↔ VCR/DAT ↔ PHONO ↔

Using Turntable, VCR and DAT

In addition to the CD Automatic Changer, Tuner, and Cassette Tape Deck, the amplifier can also play a turntable, a VCR and a DAT.

1. **Turn the power for each piece of component ON.**
2. **To play a record, press the SOURCE SELECTOR button on the amplifier so that PHONO lights on the SOURCE indicator.**
   To use VCR or DAT, press the SOURCE SELECTOR button on the amplifier so that VCR/DAT lights on the SOURCE indicator.
3. **To operate the each component, refer to its instruction manual.**

- You can operate a JVC VCR using the remote controller.

When VCR is connected, the sound is heard through the speakers.

Using the SEA Function

You can think of the SEA function as an enhanced version of the conventional Bass and Treble knobs on most sound systems. Use it to alter the tone of the source (for example, CD, tape, or broadcast) by increasing or decreasing the levels of selected frequency ranges.

The total frequency range that the amplifier can reproduce (from the lowest-pitched sounds to the highest) is divided into seven sections: 63Hz, 160Hz, 400Hz, 1kHz, 2.5kHz, 6.3kHz, and 16kHz.

By making certain frequency ranges louder or softer, you can change the sound to suit your taste. You can also choose from six pre-programmed SEA settings.

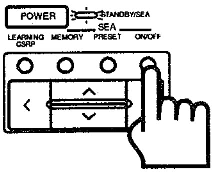
Using an SEA Pattern

You can use the SEA pattern you created, or one of the six pre-programmed SEA patterns, each of which has its own sound characteristics.

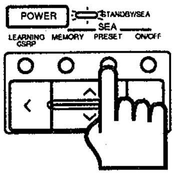
The pre-programmed SEA patterns are:

A (Rock)	Boosted low and high frequencies.
B (Jazz)	Gives a feeling of a live atomosphere. Good for acoustic music.
C (Pops)	Good for vocal music.
D (Classic)	Set for wide and dynamic sound stereo systems.
E (H.Phone)	When creating tapes for headphone use.
F (Car)	When creating tapes for use in a car stereo.

1. **Press the SEA ON/OFF button on the Amplifier.**
   The SEA indicator lights.



2. **Press the SEA PRESET button to select a SEA Pattern.**

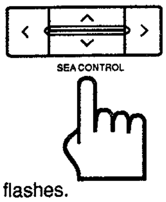


Each press of the SEA PRESET button changes the pattern displayed in the following order:

P (Pre-Programmed SEA pattern) A → B → C → D → E → F →
M (your pattern) A → B → C → D → E → F → (back to the beginning)

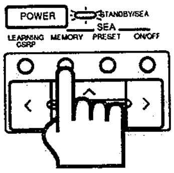
Controlling Sound with the SEA Function

1. **Press the SEA ON/OFF button on the Amplifier.**
   The SEA indicator lights.
2. **Select a preset pattern.**
3. **Press the SEA CONTROL button.**



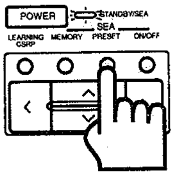
   The frequency point flashes.
   Make a setting while it is flashing.
4. **Select the frequency band to be adjusted.**
   Using the SEA CONTROL button ‹ or ›.
5. **Adjust the level.**
   Using the SEA CONTROL button ∧ or ∨.
6. **Repeat steps 3-4 for each frequency range.**
   Make a setting while it is flashing.

7. **Press the MEMORY button.**



A to F flash.

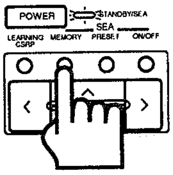
8. **Press the PRESET button and select anyone from A through F.**



Each time you press the PRESET button, the pattern will change in the following order:

A → B → C → D → E → F → (back to the beginning)

9. **Press the MEMORY button.**



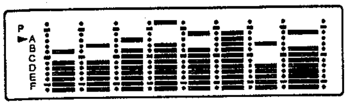
- Six patterns, A to F can be memorized.
- To recall a memoried pattern, select M(A-F) with the SEA PRESET button.

Changing the SEA Display

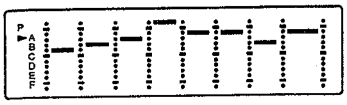
Five display modes (PEAK HOLD, PEAK LINE, SHOWER, MOUTH, EQUALIZING PATTERN) are available. Each time you press the Remote Controller DISPLAY button, the display mode will change in the following order:

→ PEAK HOLD → PEAK LINE → REVERSE → EQUALIZING PATTERN → (back to the beginning)

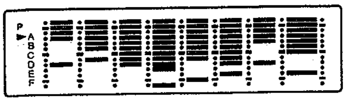
PEAK HOLD



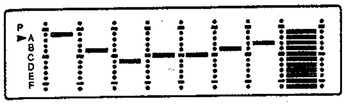
PEAK LINE



REVRESE



EQUALIZING PATTERN



Using the LEARNING CSRP Feature

The LEARNING CSRP (Compu-link Source Related Preset system) is the state-of art electronic feature that learns VOLUME and other control settings on each source. This was previously done automatically each time a difference source was played back or each time the system was turned off. It remembers the last five settings of each parameter you has set and automatically recalls the most frequently used ones.

This feature lets you invoke your favorite control settings by simply selecting a source (TAPE, TUNER, CD, VCR/DAT, PHONO) without repeating many settings each time sources are changed.

When the LEARNING CSRP button is set to ON, the following parameters are learned each time a difference source was played back or the system was turned off. In addition, the parameters are learned y time band. Time band that are automatically set are AM6:00, PM12:00, PM6:00 and AM12:00.

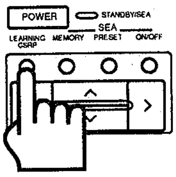
- Volume level
- SEA settings (Preset Pattern and display mode)

They will be set based on the last five settings.

- SEA ON/OFF

They will be set the last setting.

Press the LEARNING CSRP button



The indicator light will go on.

- When sources are switched, the VOLUME level, and SEA are automatically set.
- When turning the POWER off, the VOLUME control automatically turns toward MIN.
- When turning the POWER on again, the VOLUME control automatically turns up to the position set by the LEARNING CSRP function.

Using the Loudness Function

The loudness function will makes up for loss of the human auditory sensation when the sound is low.

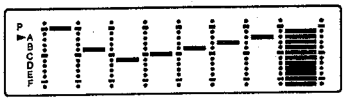
1. **Turn the SEA ON.**

2. **Press the SEA PRESET button and select P(A-F).**

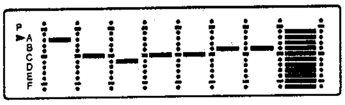
Note:
- M(A-F) does not have the Loudness Function effect.

3. **Press the LEARNING CSRP button.**
   The indicator light will go on.

- If the volume level is lowered:
  Low and high frequencies are boosted to make the sound powerful and distinct.



- If the volume level is raised:
  The SEA setting becomes similar to the preset pattern and the sound becomes natural.

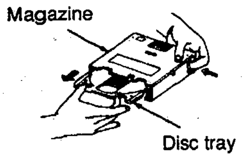


Using the CD Automatic Changer

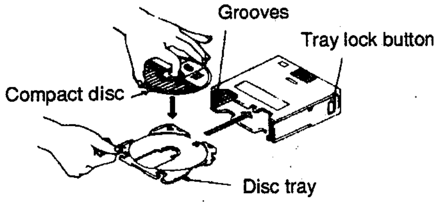
Installing the discs in the magazine

How to install the discs

1. **The discs trays in the magazine are removable.**
   Slide the disc tray out while simultaneously the tray lock button.



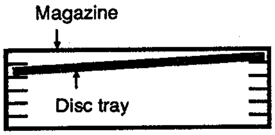
2. **Locate a disc on the disc tray with its label side up.**



3. **Line up the disc tray with the grooves in the magazine and push the disc tray right in.**
   It is unnecessary to press the tray-lock button when inserting the disc tray.

- If you wish to use 8 cm (3") CDs, please obtain the special magazine (XC-M73), designed for these.

Please note:
- Never bend the disc tray or force it into the magazine.
  A disc tray inserted skewed may cause a malfunction.



Do not insert skewed

- The openings in the disc trays are for the passage of the laser signal. These openings leave a part of the shiny surface of the disc exposed. Please take care not to touch this shiny surface.
- It is not possible to play from the disc if it is located upside-down.
- Never place a disc directly in the magazine without using the disc tray.

Preliminary Operation

Up to seven discs can be played by using both the SINGLE PLAY TRAY and magazine.

Insert the magazine, discs installed in, in the MAGAZINE SLOT.
Push it gently until it clicks in place.

Install a disc on the SINGLE PLAY TRAY.

1. **Press the OPEN/CLOSE button on the CD Automatic Changer.**
   The SINGLE PLAY TRAY slides out.
2. **Place a CD (with a label facing up) in the tray, and press the OPEN/CLOSE button again.**
   The tray slides back in.
3. **Press the CD Automatic Changer PLAY/PAUSE button, or select CD with the amplifier SOURCE SELECTOR.**
   The CD Automatic Changer plays the CD on the single play tray with the first track.

The single play tray is indicated by P on the display. For the order in the magazine, the bottom disc tray is Disc No. 1, the disc tray above it is Disc No. 2, and the top disc tray is Disc No. 6.

To Stop Play

Press the STOP/CANCEL button on the CD Automatic Changer or Stop button on the Remote Controller.

STOP/CANCEL

Ejecting the MAGAZINE

Press the EJECT button on the CD Automatic Changer or on the Remote Controller.

EJECT
EJECT

Ejecting the CD

1. **Press the OPEN/CLOSE button, and take the CD out of the tray.**

OPEN/CLOSE
OPEN
/CLOSE

2. **Press the OPEN/CLOSE button again to close the tray.**

Continuous Play

In CONTINUOUS mode, you may play any of the selection of any disc, to the final track on the DISC No. 6, continuously.

Press the PLAY MODE button and select the CONTINUOUS mode.
The CONTINUE indicator lights.

- When the power is switched on, control enters the CONTINUOUS mode.

Note:
- When you press the PLAY MODE button and change the mode, set the CD Automatic Changer to the Stop mode. You cannot change the mode during playing.

To Play from the First Selection

Press the PLAY/PAUSE button on the CD Automatic Changer.

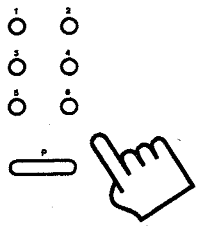
PLAY/II PAUSE

The discs are played in order from the first track on the single play tray to the last track on Disc No. 6.

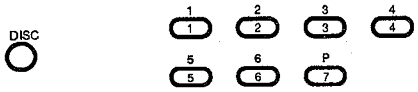
- If the single play tray is open, it will close automatically and playback will begin.
- If there is no CD on the disc tray or there is no disc tray, the CD on the next disc tray is played.

Selecting a Disc to Play

1. **Select the disc desired with the DISC button on the CD Automatic Changer.**



If you use the Remote Controller, press the DISC button, and specify the Disc No. with numeric keys 1 to 6 and P.



- The discs are played in order from the first track on the CD with the selected disc No. to the last track on Disc No. 6.

Notes:
- If there is no CD on the disc tray or the disc No. with disc tray specified, the CD on the next disc tray will be played.
- The disc No. indicators go off if there is no CD on the disc tray and there is no disc tray. You cannot select any disc No. if the corresponding indicator is off.

Selecting a Track to Play

Use the ⏮ ⏭ button.

Scanning through track numbers (AUTO SEARCH)

Each time the ⏮ button is pressed, the track moves backward by one number.
Each time the ⏭ button is pressed, the track moves forward by one number.

- If you press the ⏮ or ⏭ button continuously while the CD Automatic Changer is in the stop mode, the track number will continue to move in the selected direction.
- If you press the ⏮ or ⏭ buttons while the CD Automatic Changer is in the pause mode, you will find the original track you selected. You can restart playback by pressing the PLAY/PAUSE button.

Searching for a specific part of a track (MANUAL SEARCH)

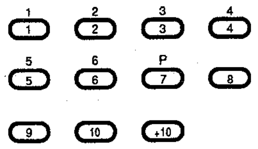
If you hold down the ⏮ button while the CD Automatic Changer is playing or has paused, fast rewinding will occur.
If you hold down the ⏭ button while the CD Automatic Changer is playing or has paused, fast forwarding will occur.

Notes:
- When the track number selected on a certain disc does not exist, play starts from the final selection on that disc.
- If there is no CD on the disc tray or you specify a track with the disc No. without a disc tray, the display Disc No. indicator will go off, and the CD on the next disc tray will be played.

Using the Remote Controller to Select a Track

There are two ways to search for a track with the remote cotroller:

Numeric keypad



AUTO SEARCH buttons ◀◀ ⏮ or ⏭ ▶▶

Using the Numeric Keypad

1. **Press the CD 10KEY button on the Remote Controller.**
2. **Enter the track's number with the numeric keys.**
- If the track you want to hear is the 8th track. press the 8 key.
- If the track you want to hear is the 15th track, press the +10 key and the 5 key.
- If the track you want to hear is the 20th track, press the +10 key and the 10 key.

Using the Auto Search Buttons

Press the Auto Search ◀◀ ⏮ or ⏭ ▶▶ button on the Remote Controller to scan through the track numbers.

Note:
- You cannot search manualy by holding down the ◀◀ ⏮ or ⏭ ▶▶ button on the Remote Controller.

Listening Repeatedly

Using the REPEAT button.

Each time you press the REPEAT button, the mode will change in the following order:

→**REPEAT** → **REPEAT 1** → **OFF**→ (back to the beginning)

REPEAT
If all discs in the CD Automatic Changer and the last track are played, playing will be repeated from the first disc.
It will keep repeating until you cancel the repetition.

- If you select the REPEAT mode in the PROGRAM mode, all the programmed tracks will be played, and they will be repeated in the order programmed.

REPEAT 1
The current track will play to the end and then start over again. It will keep repeating until you cancel the repetition.

- If you select the REPEAT 1 mode in the PROGRAM mode, the selected track will be played repeatedly.

Cancelling Repetition
Press the REPEAT button and turn the REPEAT indicator off.
Each track will play till the end without repeating.

INTRO play

This function is useful to search for a disc or track in the CD Automatic Changer.

1. **Press the STOP/CANCEL button on the CD Automatic Changer or Stop button on the Remote controller.**
2. **Press the PLAY MODE button on the CD Automatic Changer or Remote Controller, and select the CONTINUOUS mode.**
   The CONTINUE indicator lights.

3. **Press the CD Automatic Changer INTRO button and select the desired mode.**
   Each time you press the INTRO button, the mode changes in the following order:

INTRO
DISC/TRACK

→**DISC INTRO** → **INTRO** → **OFF**→ (back to the beginning)

DISC INTRO mode
Play the first track of each of the discs in the CD Automatic Changer from the disc on the single play tray to Disc No. 6, for 15 seconds.

INTRO mode
Play the beginning of each track of the discs in the CD Automatic Changer from the disc on the single play tray to Disc No. 6, for 15 seconds.

4. **Press the PLAY/PAUSE button on the CD Automatic Changer or Play button on the Remote Controller.**

PLAY/II PAUSE

- Each track will be played for 15 seconds in the mode you selected.

Notes:

- When you press the ⏮-10:TIME or ⏭+1:TIME button in the INTRO mode, this mode will be canceled, and tracks will be played as follows.
  If you press the ⏮-10:TIME button, the currently selected track will be played from the beginning in the CONTINUOUS mode.
  If you press the ⏭+1:TIME button, the track following the currently selected track is played in the CONTINUOUS mode.
  If you hold down the ⏮-10:TIME or ⏭+1:TIME button, the manual search function will be available, and you can have fast-rewind or fast-forward.
- If you press the Disc button on the CD Automatic Changer in the INTRO mode, or if you press the DISC button on the Remote Controller, then select a disc with numeric keys. This will cancel the INTRO mode, and tracks will be played in the CONTINUE mode, starting from the first track of the disc.
- If you press the CD 10KEY button on the Remote Controller, select a disc with numeric keys while playing in the INTRO mode, the INTRO mode will be canceled, and tracks will be played in the CONTINUE mode from that track.

To cancel the INTRO play

1. **Press the STOP/CANCEL button on the CD Automatic Changer or the Stop button on the Remote Controller.**

STOP/CANCEL

2. **Press the INTRO button and turn the indicator off.**

Note:

- If you press the STOP/CLEAR button on the CD Automatic Changer or the Stop button on the Remote Controller, and press the PLAY MODE button, the INTRO mode will be canceled, and the CONTINUOUS mode will change to the PROGRAM mode.

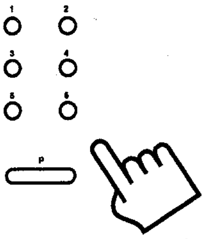
Programmed Play

In PROGRAM mode 32 steps can be programmed to play in any desired order from the 7 discs loaded into the magazine and single play tray.

Press the PLAY MODE button and select the PROGRAM mode.
The PROGRAM indicator lights.

Operate the CD Automatic Changer

1. **Press the STOP/CANCEL button.**
   This puts the CD Automatic Changer in STOP mode.
2. **Press the PLAY MODE button on the CD Automatic Changer and select the PROGRAM mode.**
   The PROGRAM indicator lights.
3. **Press the DISC button and select a disc.**
   The AL indicator flashes on the display.



- The AL indicator shows that all the tracks on the selected disc have been selected. If you press the MEMORY button while the AL indicator is flashing, all the tracks on the disc are programmed.

4. **Press the ⏮-10:TIME or ⏭+1:TIME button and select a track.**
   The step and the selected track flash on the display.

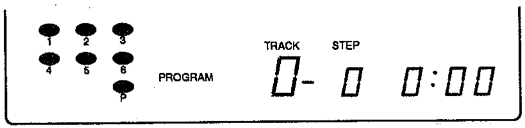
-10:TIME
+1:TIME

- Select a track while the AL indicator is flashing on the display.

5. **Press the MEMORY button on the CD Automatic Changer. The step and the selected track will light on the display.**
   The CD Automatic Changer will wait for selection of the next track.

6. **Select a track by repeating steps 3 to 5.**

- You can program up to 32 tracks.
- Perform steps 3 to 5 while the display is flashing. If the display stops flashing and lights as follows, perform step 3 and subsequent steps again.



7. **Press the PLAY/PAUSE button on the CD Automatic Changer.**
   Playback begins with the first track in the program.

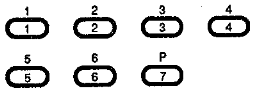
Operate the Remote Controller

You can also program tracks using the Remote Controller.

1. **Press the STOP/CANCEL button on the CD Automatic Changer.**
   This puts the CD Automatic Changer in STOP mode.
2. **Press the PLAY MODE button on the Remote Controller and select the PROGRAM mode.**
   The PROGRAM indicator lights.

3. **Press the DISC button on the Remote Controller.**

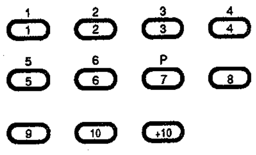
4. **Select Disc No. with numeric keys.**
   The AL indicator will flash on the display.



- The AL indicator shows that all the tracks on the selected disc have been selected. If you press the MEMORY button while the AL indicator is flashing, all the tracks on the disc are programmed.

5. **Press the CD 10KEY button on the Remote Controller.**

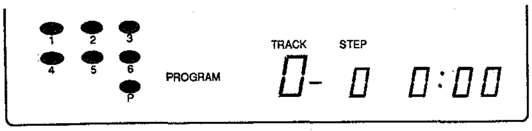
6. **Select a track with numeric keys.**
   The step and the selected track will flash on the display.



- Select a track while the AL indicator is flashing on the display.

7. **Press the MEMORY button on the Remote Controller.**
   The step and the selected track light on the display. The Remote Controller waits for selection of the next track.

8. **Select a track by repeating steps 3 to 7.**
- You can program up to 32 tracks.
- Perform steps 3 to 7 while the display is flashing. If the display stops flashing and lights as follows, perform step 3 and subsequent steps again.



9. **Press the CD CONTROL button on the Remote Controller.**
   Playback begins with the first track in the program.

Checking the Program

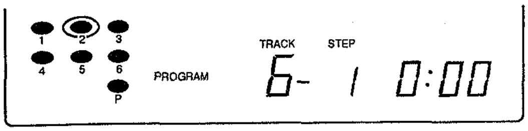
You can check the programmed sequence of playback to determine which tracks will be played in which order.

Note:
- The program contents cannot be displayed during playback. Press the STOP/CANCEL button if the CD Automatic Changer is in play mode.

1. **Press the CALL button once on the CD Automatic Changer.**

The first track in the program are displayed, along with its sequence number.

For example:



This display shows that track 6 on Disc No. 2 is played first.

2. **Press the CALL button repeatedly.**
   The rest of the tracks in the program are displayed, along with their sequence numbers.

Listening to Programmed Tracks Repeatedly

1. **Press the REPEAT button to listen to the programmed sequence of playback repeatedly.**

2. **Then press the PLAY/PAUSE button.**

Updating the Program

Adding Tracks to the Program

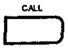
- You cannot add any track to the program while playing. If the CD Automatic Changer is playing, press the STOP/CANCEL button.

Perform steps 3 to 5 in the section Operate the CD Automatic Changer". If you use the Remote Controller, add tracks by performing steps 3 to 7 in the section "Operate the Remote Controller".

Program modification

- You cannot modify the program while playing. If the CD Automatic Changer is playing, press the STOP/CANCEL button.

1. **Hold down the CALL button until the track or step to be modified appears.**



Select them while the step is flashing on the display.
The track and step appear on the display, and the step flashes.

2. **Select the Disc. No. and track.**
   The track and step appear on the display, and the step flashes.

- If the display stops flashing and lights, perform step 1 and subsequent steps again.

3. **Press the MEMORY button.**

Deleting Tracks from the Program

- The program contents cannot be deleted during playback. Press the STOP/CANCEL button if the CD Automatic Changer is in play mode.

1. **Press the CALL button.**
   Press the CALL button until the track or step to be deleted appears on the display.

2. **Press the STOP/CANCEL button on the CD Automatic Changer or CANCEL button on the Remote Controller.**
   The track being displayed wil be deleted.

STOP/CANCEL
CANCEL

To delete all programmed steps:
- Set the CD Automatic Changer to the Stop mode, press the STOP/CANCEL button or the CANCEL button on the Remote Controller, and delete all programmed steps.
- Switch the power off.
- The program remains in memory until you switch the power off. To program new tracks, first turn the power off the delete the whole program.

To cancel the PROGRAM mode:
- Set the CD Automatic Changer to the Stop mode, press the PLAY MODE button, and select another mode.

Random Play

In RANDOM mode, the CD Automatic Changer selects and plays tracks at random, from among the 7 discs in the magazine and the SINGLE PLAY TRAY.
- Selections can be made so that each track would be played only once.

1. **Press the PLAY MODE button and select the random mode.**
   The RANDOM indicator lights.

2. **Press the PLAY/PAUSE button on the CD Automatic Changer or *CD CONTROL button on the Remote Controller.***
   CD Automatic Changer starts playing tracks at random.

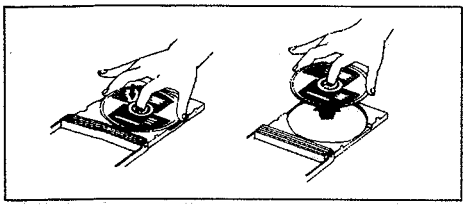
- If you set the CD Automatic Changer to the REPEAT mode by pressing the REPEAT button, even after all tracks have been played once, the CD Automatic Changer will again select and play at random to continue the random playback.

3. **To cancel random playback, press the STOP/CANCEL button.**

To cancel the RANDOM mode:
- Set the CD Automatic Changer to the Stop mode, press the PLAY MODE button, and select another mode.

Handling Compact Discs & The Magazine

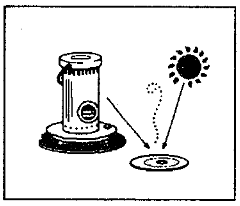
How to handle CDs



When handling compact discs, do not touch the surface of the disc (reflective silver side-the side without the label).

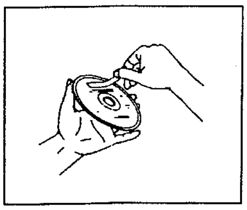
Since compact discs are made of plastic, they are easily damaged. If the disc gets dirty, dusty, scratched or warped, the sound will not be picked up correctly and, in addition, such discs may cause the CD Player-changer to malfunction.

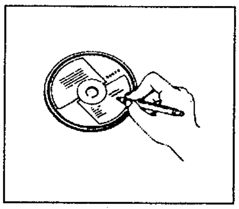
Storage



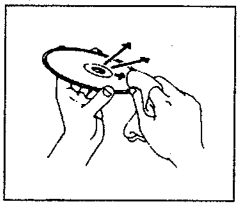
Make sure than the discs are kept in their cases. If the discs are piled, one on top of another, without their protective cases, they can be damaged. Do not put discs in any location where they can be exposed to direct sunlight- or in any place where the humidity or the temperature are high. Avoid leaving discs in your car!

Maintenance of Discs





- Do not damage the label side, or stick paper to, or use any adhesive on this surface.



- When there are fingerprints or other dirt adhering to a disc, wipe the disc with a soft, dry cloth, with a movement going from the inside, outwards.
- If it is difficult to clean, wipe the disc with a cloth moistened with water.
- Never use record cleaners. petrol, alcohol or any anti-static agents.

Recommendations on handling the magazine

1. Always keep the magazine loaded with its six disc trays.
2. When removing or inserting the disc trays, the magazine should be held horizontal.
3. Only load the magazine with compact discs already located on disc tray. Never load a disc directly into the magazine without a disc tray.
4. Do not expose it to high temperatures or to direct sunlight.
5. Do not dismantle the magazine.
6. Take care not to drop or bang the magazine. Do not apply any high loadings to the disc trays, particularly when removed from the magazine.
7. Never apply such solvents as petrol or thinner, nor insecticide to the surfaces of the magazine or the disc trays. Such solvents may damage their surfaces.
8. If you wish to use 8 cm (3") CD please obtain the special magazine (XC-M73), designed for these.

Only use compact-discs bearing the mark shown below:

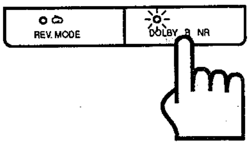
COMPACT
disc
DIGITAL AUDIO

Using the Tape Deck

The tape deck has an Auto Tape Select feature, which can tell the difference between various types of cassette tape. It can distinguish between Normal (Type I), CrO_2 - High Position (Type II), and Metal (Type IV).

Playing a Tape

1. **Press the EJECT button to open the cassette holder.**
2. **Insert a cassette and shut the cassette holder.**
3. **If the tape was recorded with Dolby B noise reduction, press the DOLBY B NR switch.**
   The indicator light will go on.

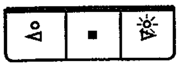


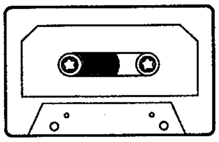
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
  "DOLBY" and the double-D symbol ᗡᗞ are trademarks of Dolby Laboratories Licensing Corporation.

4. **Start playback by either of the following methods: (Deck B only)**

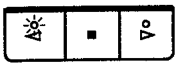
- Press the ◁ or ▷ button.

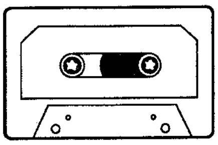
  Press the ▷ button if the tape is wound mostly on the left side.





  Press the ◁ button if the tape is wound mostly on the right side.





- Select TAPE with the SOURCE SELECTOR button on the amplifier.

Note:
- When cassettes are in both decks A and B, deck B starts first.

Stopping Playback and Ejecting the Tape

1. **Press the STOP button on the tape deck.**

■

2. **Press the EJECT button to open and remove the tape from the cassette holder.**
3. **Shut the cassette holder.**

Note:
- If the system is turned off while a tape is playing, you may not be able to eject the tape. You will need to turn the system back on and press the EJECT button to open the cassette holder.

Stopping and Restarting Playback

1. **Press the PAUSE button on the tape deck.**

O॥

Playback of the tape in deck B stops temporarily.

Note:
- The PAUSE button only applies to deck B.

2. **Press the ◁ or ▷ button.**
   The restarts playback of the tape in deck B.

Changing the Playback Direction (Deck B only)

1. **To change the playback direction during playback, press the ◁ or ▷ button.**
   The other side of the tape will now play.
2. **To change the playback direction without starting playback, press the ◁ or ▷ button while also pressing the stop ■ button.**

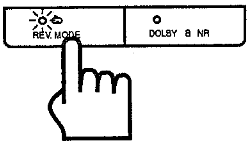
Fast-Winding the Tape

Press the ◀◀ or ▶▶ buttons on the Tape Deck to advance the tape rapidly in the direction of the arrows.

REV. mode selection

Press the REV. MODE button and select the replay mode.

If the REV. MODE button indicator is off, the non-reverse mode is effective. If you press the REV. MODE button and turn the indicator on, the auto reverse mode will become effective.



Non Reverse mode
The tape on deck A and the tape on deck B are played continuously and repeatedly in the direction of the arrow (▷).
When playing of the tape on deck A ends, then that of the tape on deck B will start automatically. When playing of the tape on deck B begins, the tape on deck A will be automatically rewound.
When playing of the tape on deck B ends, playing of the tape on deck A will begin automatically. When playing of the tape on deck A begins, the tape on deck B will be automatically rewound.

Reverse mode
One side of the tape on deck A and the both sides of the tape on deck B are played continuosly and repeatedly.
When playing of the tape on deck A ends, playing of the tape on deck B will begin automatically. When playing of one side of the tape on deck B ends, the other side of the tape on deck B will be automatically played. When playing of the both sides of the tape on deck B ends, playing of the tape on deck A begins automatically. The tape on deck A is rewound automatically when deck B starts playing.

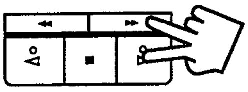
1. **Insert cassettes into decks A and B.**
2. **Press the REV. MODE button and select the REV. mode.**
3. **Press the ▷ button on deck A or the ◁ or ▷ button on deck B.**

- When you select TAPE with the SOURCE SELECTOR on the amplifier, deck B starts first.

Music Scanning

The music scan function will detect the blank segments between tracks. The blank should be about 4 seconds long for the music scan to be effective.

You can locate the beginning of the current track or next track quickly by pressing the playback button and the fast-winding button simultaneously.



Searching for Beginning of the Current Track

- If the tape is traveling in the forward direction, press the ◀◀ fast-winding button while simultaneously pressing the ▷ playback button.
- If the tape is traveling in the reverse direction, press the ▶▶ fast-winding button while simultaneously pressing the ◁ playback button. (deck B only)

Searching for Beginning of the Next Track

- If the tape is traveling in the forward direction, press the ▶▶ fast-winding button while simultaneously pressing the ▷ playback button.
- If the tape is traveling in the reverse direction, press the ◀◀ fast-winding button while simultaneously pressing the ◁ playback button. (deck B only)

Note:
- The deck that is playing will stop if the music scan function is used on the other deck.

The music scan function is not effective:
- When the track being scanned contains an area of low sound level.
- When the blank between tracks is short.
- When there is noise, for example, a hum between tracks.

Recording a Tape

Recording Notes

- Deck A is used for playback only, and deck B is used for both recording and playback.
- To reduce hiss, use the Dolby B noise reduction system. Press the DOLBY B NR button. The indicator light will go on.
- To record on both sides A and B continuously, select auto reverse mode by pressing the REV. MODE button.
- The recording level is set automatically.
- If the small tabs on cassette tapes which prevent accidental erasure have been removed, the contents of the tape cannot be over-recorded or erased. To record or erase, cover the holes with adhesive tape. The tab in the upper left corner controls the side facing you; and the other tab controls the opposite side.
- If you are recording an AM (MW/LW) broadcast and you hear interference, move the BEAT CUT switch on the rear panel of the cassette deck & amplifier unit from Position 1 (the normal mode) to Position 2.

Recording from Various Sources

1. **Insert a cassette for recording into deck B.**
2. **Select the source you are recording from.**
3. **Press the Pause II button on the tape deck while simultaneously pressing the REC/REC MUTE button.**
   This puts the deck B in REC/PAUSE mode.

REC/REC MUTE

- To record sound that has been adjusted by the SEA, make the SEA indicator light, then select an SEA effect.

Note:
- When LEARNING CSRP in ON, do not change the volume level during recording because the loudness feature will cause the SEA settings to be altered.

4. **Start the source to be recorded.**
5. **Press the Play ◁ or ▷ button on the deck B to start recording.**
   To record on both sides of tape, start recording in the forward (▷) direction.
6. **To stop recording, press the Stop ■ button.**
7. **To stop recording temporarily, press the Pause button on deck B.**
   To restart recording again, press the Play button ◁ or ▷.

Dubbing a Tape

Normal-speed Dubbing

1. **Insert the cassette for playback into deck A and the cassette for recording into deck B.**

- The type of tape (Normal, CrO$_2$, or Metal) used for recording must be the same as that used for playback.
- With the Dolby system on, tapes are recorded in the same Dolby mode as the pre-recorded tape, regardless of whether the DOLBY B NR button is ON or OFF (the DOLBY B NR indicator remains off while dubbing is in progress.)
- You cannot dubbing using SEA-adjusted sound.

2. **Press the Pause II button while simultaneously pressing the REC/REC MUTE button on deck B.**
   This places deck B in REC/PAUSE mode.
3. **Press the Play button ▷ on deck A.**
4. **Press the Play button ◁ or ▷ (depending on which side of the tape you want to record onto) on deck B.**
   The tape-to-tape recording starts.

Note:
- You cannot listen to another source during normal-speed dubbing.
- To stop normal-speed dubbing before end of either the playback or record tape, press the Stop ■ buttons on decks A and B.

High-Speed Dubbing

1. **Insert the cassette for playback into deck A and the cassette for recording into deck B.**
2. **Press the HIGH SPEED DUBBING button on the Tape Deck.**
   The high-speed tape-to tape recording starts.

HIGH SPEED DUBBING

Note:
- *You can listen to another source while high-speed dubbing is in progress.*
- To stop high-speed dubbing before reaching the end of either playback or record tape, press the Stop ■ button on deck B.
- If nearby television is on during high-speed dubbing, beeping noise may be recorded onto the record tape. So turn off the television or move it farther away.

3. **Press the Stop ■ button on deck A when you hear the end of a track to record from many different tapes (for example, to create a "Greatest Hits" tape).**

   Deck A stops playback, and deck B automatically creates about a 4 second blank, then pauses.

Note:
- If you don't want this blank, press the Pause II button on deck B before pressing the Stop ■ button.

4. **Put another tape in to deck A.**
5. **Press the HIGH SPEED DUBBING button on the Tape Deck.**
   The high-speed dubbing restarts.
6. **To record tracks from other tapes, repeat steps 3-5.**

Note:
- ***It should be noted that it may be unlawful to re-record prerecorded tapes, records, or discs without the consent of the owner of copyright in the sound recording and in any copyright musical or literary work embodied in that recording.***

Erasing a Tape

1. **Insert the tape to be erased into deck B.**

- When you want to erase both sides, press the REV. MODE button so the indicator lights.

2. **Press the Pause ⏸ button while simultaneously pressing the REC/REC MUTE button.**
   This puts the deck in REC/PAUSE mode.
3. **Press the SOURCE SELECTOR button on the amplifier to select the TAPE.**
4. **Press the ◁ or ▷ button (depending on which side of the tape you want to erase) on deck B.**
   The erasure of the tape begins.

Direct Recording from the CD Automatic Changer

Direct recording permits a tape deck to start recording automatically in synchronism with a CD Automatic Changer.

1. **Insert the cassette for recording into deck B.**
   - If you with to record on both sides of the cassette, press the REV. MODE button so the indicator lights.
2. **Place the CD on the single play tray.**
3. **Press the CD DIRECT REC button on the Tape Deck.**

CD DIRECT REC

- The CD Automatic Changer and the Tape Deck are activated, and recording begins with the first track of the CD.
- To stop direct recording, press the Stop ■ button on deck B or the STOP/CANCEL button on the CD Automatic Changer.

Note:
- If you press the Disc button, ⏮ +10:TIME or ⏭ +1:TIME button during recording, the track to be recorded is changed.

Recording CD Tracks in Auto-Edit Mode

In Auto-Edit mode, tracks fro the CD will automatically be selected to determine which tracks should go on side A of the tape and which should go on side B.

The selection is based on the lengths of the tracks and the length of the tape.
This ensures a proper "fit" of the tracks recorded on the tape. It prevents a track from being cut off when the end of the tape is reached.

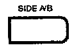
1. **Insert the cassette for recording in deck B.**
   - When you want to record both sides of a cassette, select auto reverse mode by pressing the REV. MODE button so the indicator lights.
2. **Set the CD and magazine.**
3. **Press the STOP/CANCEL button on the CD Automatic Changer.**
4. **Press the EDIT button on the CD Automatic Changer and select the Auto Edit mode.**
   The A. EDIT indicator lights.

5. **Enter the length of the tape to be recorded using the ⏮ +10:TIME and ⏭ +1:TIME buttons.**

⏮ +10:TIME
⏭ +1:TIME

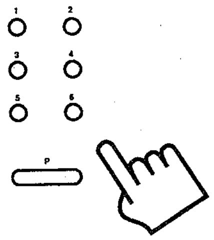
For example: To set a period of 46 minutes, press the ⏮ +10:TIME button four times and press the ⏭ +1:TIME button six times.

6. **Press the SIDE A/B button.**

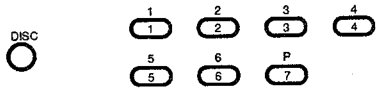


- The CD Automatic Changer calculates which tracks should be placed on side A and which should be placed on side B.

7. **Press the Disc button and specify the Disc No. of the disc to be recorded.**



- If you use the Remote Controller, press the DISC button and then specify one of 1 to P with a numeric key.

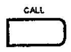


- To change the disc, specify the Disc No. of another disc again.
- To start recording the tracks on the selected CD with a track other the first, press the ⏮ +10:TIME or ⏭ +1:TIME button on the CD Automatic Changer or press the ◀◀ ⏮ or ⏭ ▶▶ button on the Remote Controller to specify the track with which recording is to start.

⏮ +10:TIME
⏭ +1:TIME

8. **Press the MEMORY button on the CD Automatic Changer or Remote Controller.**
   The Auto Edit program is created automatically.

- The last track to be recorded, the number of steps, and the remaining time of side B of the set tape are shown on the display.
  When you press the SIDE A/B button again, the last track of side A of the set tape to be recorded, the number of steps, and the remaining time of the tape are shown on the display.
- To check the Auto Edit contents, press the CALL button. Each time you press the button, the track and step of the displayed side will show on the display.



Note:
- Up to 16 tracks can be allocated for each side of the cassette.

9. **Press the CD DIRECT REC button on the Tape Deck.**

CD DIRECT REC

- The tape is automatically rewound to the beginning of side A, and then recording begins.
- When the Tape Deck is set in the auto reverse mode, after the last track is recorded on side A, the tape deck high-speed-erases to the end of side A. Then it changes direction to side B and begins recording the remaining tracks.
- To stop recording, press the Stop ■ button on deck B, or press the STOP/CANCEL button on the CD Automatic Changer.

Note:
- **During recording in the Auto-Edit Mode, do not operate the CD Automatic Changer.**

To cancel the Auto-Edit mode, press the STOP/CANCEL button on the CD Automatic Changer, then press the PLAY MODE button.

Recording CD Tracks in Programmed-Edit Mode

You can make your favorite selections from 7 CD and record them on cassette.

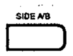
1. **Insert the cassette for recording in deck B.**
   - When you want to record both sides of a cassette, select auto reverse mode by pressing the REV. MODE button so the indicator lights.
2. **Set the CD and magazine.**
3. **Press the STOP/CANCEL button on the CD Automatic Changer.**
4. **Press the EDIT button on the CD Automatic Changer and select the Programmed Edit mode.**
   The P. EDIT indicator lights.

5. **Enter the length of the tape to be recorded using the ⏮+10 TIME and ⏭+1 TIME buttons.**

+10 TIME
+1 TIME

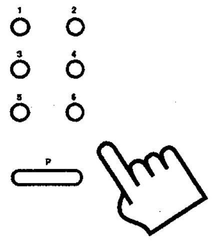
For example: To set a period of 46 minutes, press the ⏮+10 TIME button four times and press the ⏭+1 TIME button six times.

6. **Press the SIDE A/B button.**

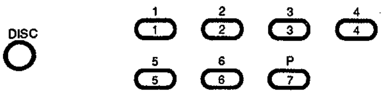


- This tells the system that you will be choosing tracks to be recorded on side A of the tape.
- The length of time for one side of the tape is displayed. This is half of the total tape length. The total time for the tracks you choose for each side cannot exceed this time.
- If you do not press the SIDE A/B button, side A is automatically selected.

7. **Press the Disc button and specify the Disc No. of the disc containing the track to be recorded.**



- If you use the Remote Controller, press the DISC button and then specify one of 1 to P with a numeric key.

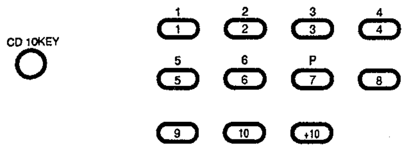


- To change the disc, specify the Disc No. of another disc again.

8. **Press the ⏮+10 TIME or ⏭+1 TIME button and select the track to be recorded.**

+10 TIME
+1 TIME

- If you use the Remote Controller, press the CD 10KEY button, then specify a track with a numeric key.

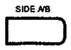


9. **Press the MEMORY button on the CD Automatic Changer or Remote Controller.**

MEMORY
MEMORY

- Up to 16 tracks can be allocated for each side of the cassette.
- If the length of a track exceeds the remaining tape length, the time indication blinks on the display. Choose a different track number.
- To delete a track from the program, press the CALL button to display the track to be deleted. Press the STOP/CANCEL button on the CD Automatic Changer or the CANCEL button on the Remote Controller.

10. **If you also want to record on the other side of the tape, press the SIDE A/B button and repeat steps 7-9.**



- To check the Programmed Edit contents, press the CALL button. Each time you press the button, the track and step of the displayed side are shown on the display.
  To modify a track in the program, press the CALL button, and call the track to be modified. Select a new Disc No. and track, then press the MEMORY button.

11. **Press the CD DIRECT REC button on the Tape Deck.**

CD DIRECT REC

- The tape is automatically rewound to the beginning of side A, and then recording begins.
- When the Tape Deck is set in the auto reverse mode, after the last track is recorded on side A, the tape deck high-speed-erases to the end of side A. Then it changes direction to side B and begins recording the remaining tracks.
- To stop recording, press the Stop ■ button on deck B, or press the STOP/CANCEL button on the CD Automatic Changer.

To cancel the Programmed-Edit mode, press the STOP/CANCEL button on the CD Automatic Changer, then press the PLAY MODE button.

Note:

- The program cannot be edited during recording. To modify the program, cancel the Programmed-Edit mode, and perform step 4 and subsequent steps.

Note:

- During recording the Programmed-Edit mode, do not operate the CD Automatic Changer.

Creating a Blank During Recording

Use the Record Muting function when you do not want to record a section of the source.

1. **Press the REC/REC MUTE button on the Tape Deck at the beginning of the section you don't want to record.**

REC/REC MUTE

A blank of about 4 seconds is created on the cassette, and then the deck pauses.

2. **To start recording again, press the ◁ or ▷ button.**

- To create a blank of more than 4 seconds, hold down the REC.REC MUTE button. When you release this button, the deck pauses.
- When the source you are recording from is the CD Automatic Changer and the CD DIRECT REC button is used, the REC/ REC MUTE button will not function.
- The Remote Controller REC button dose not have the REC MUTE function.

Recording with the Timer

The Tape Deck can be set up to record a tape automatically. This is especially useful for recording broadcasts when you are not around, or late at night when you are asleep.

1. **Insert a cassette for recording in to deck B.**
2. **Set the timer, by following the steps in "Setting the Timers".**
3. **Select one of the following sources:**

TUNER TIMER REC	Records TUNER preset stations
- - TIMER REC	Records from the source selected before turning off the system.

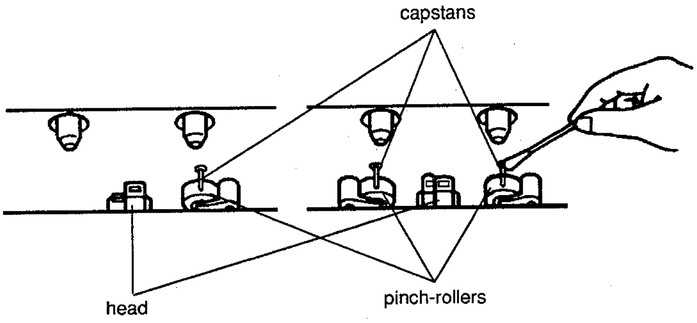
Care and Handling

You must handle your cassette tapes, and tape deck carefully to preserve the full length of their life-times.

- If a tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating it.
  If a tape is loose, it may get stretched, cut, or caught in the cassette.
- Do not touch the tape surface.
- Do not store the tape:
  — In dusty places
  — In direct sunlight or heat
  — In moist areas
  — On a TV or speaker
  — Near a magnet
- The use of C-120 or thinner tape is not recommended.

Tape Deck

- If the head, capstans, or pinch-rollers of the tape deck become dirty, the following may occur:
  — Impaired sound quality
  — Discontinuous sound
  — Fading
  — Incomplete erasure
  — Impossible to record
- Clean the head, capstans and pinch-rollers with a cotton swab moistened with alcohol.



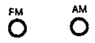
Using the Tuner

Listening the Broadcasts

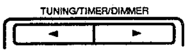
The tuner can receive FM and AM broadcasts. Stations can be tuned in manually, automatically, or from preset memory storage.

Manual Tuning

1. **Select the broadcast band you want to tune in by pressing the FM of AM button on the Tuner.**



2. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to tune in a station.**



3. **Hold down the TUNING/TIMER/DIMMER button to change the frequency rapidly, then tap the button to set the frequency precisely.**

Automatic Tuning

1. **Select the broadcast band you want to tune in by pressing the FM or AM button on the Tuner.**
2. **Hold down the TUNING/TIMER/DIMMER button (◄ or ►) for a moment, and then release the button.**

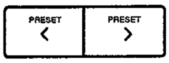
- When a station is tuned in, the TUNED indicator lights up.

Note:
- The Tuner will tune in the nearest strong station.

Presetting Stations in Memory

You can store up to 40 of your favorite radio stations (FM and AM) in memory, giving you quick, easy access to the stations.

1. **Select a band by pressing either the FM or AM button on the Tuner.**
2. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to tune in a station.**
3. **Press the MEMORY button on the Tuner.**
   The "MEMORY" indicator on the Tuner display blinks for 5 seconds.
4. **Press the PRESET button (< or >) on the Tuner to assign a number (1-40) to the station, or enter a number (1-40) with the Remote Controller's numeric keypad.**



Example:
To enter 7, press "7".
To enter 17, press "+10", then "7".
To enter 20, press "+10", then "10"

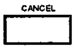
- Before using the numeric keypad, press either the FM or AM button. This will allow you to use the numeric keypad in the Tuner mode.
- If the "MEMORY" indicator has stopped blinking, press the MEMORY button again and repeat step 4.
- If the preset number you chose already has a station assigned to it, the old station will be replaced by the new one.

5. **Press the MEMORY button again.**
   This stores that station in memory, with the preset number (1-40) you chose in step 4.
6. **Repeat steps 1-5 for each station you want to store in memory with a preset number.**

Caution! If the system is unplugged or if a power failure occurs, the preset stations stored in memory may be lost.

Cancelling Preset Stations

1. **Press the CANCEL button on the Tuner.**
   The "CANCEL" light on the Tuner display blinks for 5 seconds.



2. **Press the PRESET button (< or >) on the Tuner to select the preset station you want to cancel.**
   If the "CANCEL" light has stopped blinking, press the CANCEL button again and repeat step 2.
3. **Press the Cancel button again.**
   The preset station will be cancelled.

Tuning in Preset Stations

- Press the PRESET button (< or >) on the Tuner to select the preset station you want. The preset station numbers are displayed sequentially each time you press the PRESET button.
- You can also select a station by entering its preset number on the Remote Controller's numeric keypad.
- Before using the numeric keypad, press either the FM or AM button. This will allow you to use the numeric keypad in the Tuner mode.

FM Reception Modes

There are two FM reception modes: AUTO and MONO.

AUTO: Stations are tuned in with either STEREO or MONO, depending on the FM signal.
MONO: Stations are tuned in with MONO only. This will reduce interference noise of weak stations and make the reception sound better.

1. **Press the FM MODE/ MUTE button on the Tuner to switch between the AUTO and MONO reception modes.**

FM MODE/MUTE

2. **Press the FM MODE/MUTE button on the Tuner to the AUTO mode to receive the station in stereo.**

- If a stereo broadcast is received when the FM band is selected, the "STEREO" light will be displayed on the Tuner.
- If the FM Reception Mode is MONO, the "STEREO" light will not be displayed.

Using the Timers

Setting the Clock

The clock will be displayed even when the system is turned off. Pressing the TUNING/TIMER/DIMMER button (◄ or ►) will switch between two brightness levels for the clock.

1. **Press the CLOCK ADJUST button on the Tuner.**
   The hours digits blink.

CLOCK ADJUST

2. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to set the hours digit.**

TUNING/TIMER/DIMMER
◄
►

- Press the ► button to increase the hour, and press the ◄ button to decrease the hours.
- To enter a new hour digit, press the CANCEL button and repeat step 2.

3. **Press the MEMORY button on the Tuner.**

   This sets the hour portion of the time.

   The minutes digits will blink.

4. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to set the minutes digit.**

- It's a good idea to set the minutes digits one minute ahead. Then you can start the clock when it reaches the set time exactly (according to the correct time form the TV, radio, or telephone).
- To enter a new minute digit, press the CANCEL button and repeat step 4.

5. **Press the MEMORY button.**
   The clock starts as soon as you press the MEMORY button.

Caution! If there is a power failure, or if you unplug the stereo, the clock time will be lost. Repeat steps 1-5 when power is restored.

- Using the TUNING/TIMER/DIMMER button to change luminosity of time display by two steps under STANDBY status.
  ► : Increases luminosity
  ◄ : Decreases luminosity

Setting the Timers

With the timers you can make tape recordings of broadcasts, CD's, or tapes when you're not around. You can also play these music sources at specified times without recording them

- Use TIMER 1 and TIMER 2 record a radio broadcast when you're not home, or late at night when you're asleep.
- Use the DAILY timer to record a broadcast that occurs at the same time every day.
- The procedure for setting TIMER 1, TIMER 2 and the DAILY timer is the same. You need to tell the system:
  — The name of the timer (TIMER 1 , TIMER 2, or DAILY).
  — The time the timer should turn the system on.
  — The time the timer should turn the system off.
  — The source the timer should turn on (Tuner, CD, or Tape).
  — The volume level that should be used during recording or playback.

Note:
- The clock must be set to the correct time for the timers to be effective.

Caution! Do not operate the remote controller when you are programming the timer.

Choosing a Timer

Press the TIMER 1, TIMER 2, or DAILY button on the Tuner to select a timer. This puts the system in the Timer Setting mode. The information that the system expects next will blink on the display.

Setting the Start Time

1. **Press the TUNING/TIMER/DIMMER buttons to set the hour that the system will turn on.**

   The ◄ button makes the hour number decrease, and the ► button makes the hour number increase.

2. **Press the MEMORY button.**
   This stores the hour portion of the start-time in memory.

3. **Press the TUNING/TIMER/DIMMER buttons to set the minute.**
4. **Press the MEMORY button.**
   This stores the minute portion of the start-timer in memory.

Setting the Stop Time

1. **Press the TUNING/TIMER/DIMMER buttons to set the hour that the system will turn off.**
2. **Press the MEMORY button.**
   This stores the hour portion of the stop-time in memory.
3. **Press the TUNING/TIMER/DIMMER buttons to set the minute.**
4. **Press the MEMORY button.**
   This stores the minute portion of the stop time in memory.

Selecting the Source

1. **Press the TUNING/TIMER/DIMMER button to select a source.**

   Repeatedly pressing the ► button displays the sources in the following order:

Display	**What it meats**
-- -- -- -- --	Plays from whichever source was used just before turning off the system
TUNER	Plays FM or AM broadcast
TUNER TIMER REC	Records FM or AM broadcast
CD	Plays a CD
TAPE	Plays a tape
-- -- TIMER REC	Records from whichever source was used just before turning off the system

Note:
- If you choose an FM or AM radio station as the source, select the preset station by pressing the PRESET button on the Tuner.

2. **Press the MEMORY button.**
   This stores the source to play or record in memory.

Setting the Volume

1. **Press the TUNING/TIMER/DIMMER button to select a volume level.**
   Repeatedly pressing the ► button displays the volume levels in the following order.:

Display	**What it means**
VOL -- --	Volume set to the level used before shut the power off.
VOL -- 0	Volume off
VOL -- A	Volume barely on
VOL -- B	Volume at about a 1/4 turn of the volume knob
VOL -- C	Volume at about a 1/3 turn of the volume knob

2. **Press the MEMORY button.**
   This stores the volume level for timed playback or recording in memory. To change your selection, press the CANCEL button and enter a new value.

Starting the Timer

Press the Timer button to start the timer. The timer you chose should light on the display.

Note:
- If the timer light does not light, the timer was not set properly, and you need to set the start time again.

To change your selection, press the CANCEL button and enter a new value.

Turning the System Off

Press the POWER button on the amplifier to turn the system off.

POWER ⊂⊃ STANDBY/SEA

- The system is now programmed to turn on at the preset start-time, and play or record until the stop-time.
- It will record or play the preset source at the preset volume level until the top-time is reached.
- If you turn the system on before the start-time, the timer will still operate as programmed at the start-time.

Resetting the Timers

To reset a timer, press the button (TIMER 1, TIMER 2, or DAILY) on the Tuner twice. Now the timer is set again and will use the same start-time, stop-time, source, and volume level as before.

Setting the Wake-Up and Sleep Timer

You can set a timer so it turns on to wake you up or turns off when you go to sleep.

Setting the Wake-Up Timer

The wake-up timer serves as an alarm clock. It turns the system on after a programmed time lapse and plays the source that was used before the system was turned off. You can set a wake-up time from between 5 minutes and 12 hours.

1. **Press the POWER switch on the amplifier so it is off.**
2. **Press the WAKE UP/SLEEP button on the Tuner.**
   This tells the system that you are going to set the wake-up time.
3. **Press the WAKE UP/SLEEP button repeatedly until the desired wake-up time appears.**

WAKE UP/SLEEP
○

- Each time you press the WAKE UP/SLEEP button, the wake-up time lapse changes in the following order:

  →0:05→0:10→0:15→0:30→0:45→1:00→1:30→2:00→3:00→(every hour)→12:00→ (back to the beginning)

- If you make a mistake, press the CANCEL button on the Tuner and enter a new wake-up time with the WAKE UP/SLEEP button.

The system will now turn on after this time lapse.

- The wake-up timer has priority over TIMER 1, TIMER 2, and the DAILY timer.
  This means that if the start-time for one of the timers occurs before the wake-up time, the system will wait until the wake-up time to turn on.

Note:
- If CD is the source that will be used, playback begins with the first track.

Setting the Sleep Timer

The sleep timer is used to turn off the system after a specified time lapse. With this timer you can fall asleep listening to music, knowing that the system will shut off automatically and not stay on all night. You can set the sleep timer to turn the system off from between 5 minutes and 2 hours.

1. **Press the POWER switch on the Amplifier so it is on.**
2. **Start the source you want to listen to.**
3. **Press the WAKE UP/SLEEP button on the Tuner.**

   WAKE UP/SLEEP
   ○

   This tells the system that you are going to set the sleep time.
4. **Press the WAKE UP/SLEEP button repeatedly until the desired sleep time appears.**

   Each time you press the WAKE UP/SLEEP button, the sleep time lapse changes in the following order:

   →0:05→0:10→0:15→0:30→0:45→1:00→1:15→1:30→1:45→2:00→ (back to the beginning)

- If you make a mistake, press the CANCEL button on the Tuner and enter a new sleep time with the WAKE UP/SLEEP button.

The system will now turn off after this time lapse.

- The sleep timer has priority over TIMER 1, TIMER 2 and the DAILY timer.

This means that if the stop-time for one of the timers occurs before the sleep time, the system will wait until the sleep time before turning itself off.

Checking the Remaining Time

After setting the wake-up or sleep timer, you can check the time remaining until the system turns on (wake-up time) or shuts off (sleep time).

Press the WAKE UP/SLEEP button.

The remaining time is displayed for 5 seconds. Then the clock time appears again.

Adding More Time

If you want more time before the wake-up timer turns the system on (or the sleep timer turns the system off), follow these steps:

1. **Press the WAKE UP/SLEEP button.**
   The remaining time is displayed for 5 seconds. Then the clock time appears again.
2. **Press the WAKE UP/SLEEP button again before the clock time is displayed.**

- Keep pressing this button until the desired additional time is reached.

Now the system will wait until the added amount of time until turning on or shutting off.

Cancelling the Time Setting

If you decide you don't want the system to wake you up or play music while you fall asleep, you can turn these timers off.

1. **To cancel the wake-up timer, press the POWER button on the Amplifier.**
   This turns the power on.

   POWER ⊂⊃ STANDBY/SEA

2. **To cancel the sleep timer, press the POWER button on the Amplifier.**
   This turns the power off.

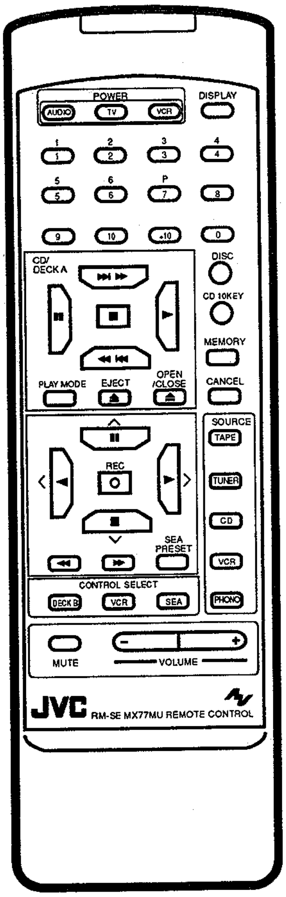
Using the Remote Controller

Operating the Remote Controller

You can use the Remote Controller to operate the system without leaving your chair. You can use it up to a distance of 23 feet.

Point the Remote Controller at the remote sensor on the Amplifier.

Note:
- When the Tuner is selected as the source, and Cd OFF is displayed, only the OPEN/CLOSE and PLAY button on the Remote Controller can be used. To use other buttons on the Remote Controller (for programming and other operations), select CD with the SOURCE SELECTOR, or press the CD PLAY button on the Remote Controller first.


POWER
AUDIO
TV
VCR
DISPLAY
1
2
3
4
5
6
P
7
8
9
10
+10
0
CD/DECK A
DISC
CD 10KEY
MEMORY
PLAY MODE
EJECT
OPEN/CLOSE
CANCEL
SOURCE
TAPE
REC
TUNER
CD
SEA PRESET
VCR
CONTROL SELECT
DECK B
VCR
SEA
PHONO
MUTE
VOLUME
JVC
RM-SE MX77MU REMOTE CONTROL

POWER

Turn on the main unit	AUDIO
Turn on the TV	TV
Turn on the VCR	VCR

Note:
- Use only a TV and VCR made by JVC.
  If your VCR has the remote control code A/B switch, set the switch to the A position.

Amplifier

Adjust volume level	− +
Gradually reduce the volume to zero (If you press it again, the volume will return to roughly what it was before.)	MUTE
Change the SEA DISPLAY	DISPLAY
Set the SOURCE SELECTOR of the amplifier to TAPE	TAPE
Set the SOURCE SELECTOR of the amplifier to TUNER	TUNER
Set the SOURCE SELECTOR of the amplifier to CD	CD
Set the SOURCE SELECTOR of the amplifier to VCR	VCR
Set the SOURCE SELECTOR of the amplifier to PHONO	PHONO
Change the PLAY MODE of the CD Automatic Changer	PLAY MODE
Select the SEA pattern	SEA PRESET
Set the Remote Controller to the SEA CONTROL mode	CONTROL SELECT DECK B VCR SEA
Select the SEA frequency band, or select a preset pattern	< ◄ ► >
Adjust the SEA level, or select a preset pattern	∧ II ■ ∨

Note:
- Use the main unit switch to turn the SEA on or off.

CD Automatic Changer

Eject the magazine.	EJECT ⏏
Open and close the disk tray	OPEN/CLOSE ⏏
When the Remote Controller is set to CD mode, the CD is played	CD
Play a CD	►

Stop playback of a CD	■
Set the numeric keys to the DISC mode	DISC ○
Select the Disc No.	1 2 3 4 5 6 P(7)
Place numeric keys in CD mode	CD 10KEY ○
Select track number	1 2 3 4 5 6 P(7) 8 9 10 +10
Scanning through the track number	◄◄ ⏮ , ⏭ ►►

Tape Deck

When the CD/DECK A key is set to deck A mode, the cassette is played. If both decks A and B contain a cassette, the cassette in deck B is played first.	TAPE

DECK A

Play a tape	►
Stop playback	■
Fast forwarding or fast rewinding	◄◄ ⏮ , ⏭ ►►
Search for beginning of the track	► + ◄◄ ⏮ , ⏭ ►►

DECK B

Set the Remote Controller to the DECK B mode	DECK B
Play a tape in forward direction	►>
Play a tape in reverse direction	<◄
Stop playback temporarily (deck B)	II
Stop playback	■
Fast forwarding or fast rewinding	◄◄ , ►►
Search for beginning of the track while in forward direction	►> + ◄◄ , ►►
Search for beginning of the track while in reverse direction	<◄ + ◄◄ , ►►
Recording in forward direction	REC ○ + ►>
Recording in reverse direction	REC ○ + <◄
Pausing recording	REC ○ + II
Stopping recording	■

Tuner

Selecting Tuner mode	TUNER
Selecting a preset station	1 2 3 4 5 6 P(7) 8 9 10 +10

VCR

Set the Remote Controller to the VCR mode	CONTROL SELECT DECK B VCR SEA
Recording	REC ○ + ►>
Play a tape	►>
Stop playback	■
Stop recording or playback temporarily	II
Rewind the tape	◄◄
Fast forwarding	►►
Select a TV channel	1 2 3 4 5 6 P(7) 8 9 0

- When using the remote controller to operate a VCR, point the controller at the VCR.

Note:
- Where "+" is indicated, press and hold the first button illustrated, then press the second.

Troubleshooting

Sympton	Possible Cause	Action
No sound is heaard.	Speakers are connected incorrectly.	Re-connect speakers (See "Connecting the SystemComponent")
Impossible to record.	Tape tabs are broken out.	Cover tabs with adhesive tape.
Interference during broadcast.	Antenna is disconnected. The loop antenna is too close to the system.	Re-connect the antenna securely. Change the position and direction of the loop antenna.
CD Sound is discontinuous.	The CD is seratched or stained.	Clean or replace the CD.
The Remote Controller cannot be operated.	There is an obstruction blocking the remote sensor on the amplifier. The batteries of the Remote Controller are weak.	Remove the obstruction. Replace the batteries.
The magazine does not eject when the EJECT button is pressed.	The power is off. The magazine has not been inserted correctly.	Turn on the system. Pusy the magazine all the way in and try pressing the EJECT button again.
The CD disc tray cannot be operated.	Are the power cord and the system connector unplugged?	Plug the power cord and the system connector in properly.
A selection on a CD was not played.	The CD is in the tray puside down.	Put the CD in the tray with the label side facing up.
Operations are disabled.	The built-in microprocessor may malfunction due to external electrical interference.	Unplug the system, then plug it back in.
The cassette holder cannot be opened.	The system was turned off because the timer was operated while the tape was running.	Turn on the system.

Specifications

Double Cassette Amplifier

AMPLIFIER SECTION	
Output Power	
SPEAKERS A (Main)	**18 watts per channel, min. RMS, both channels driven into 8 ohms, from 40Hz to 20kHz with no more than 0.9% total harmonic distortion.**
SPEAKERS B (Subwoofer)	**22 watts per channel, min. RMS, both channels driven into 6 ohms, at 80 Hz, with no more than 0.9% total harmonic distortion.**
Total Harmonic Distortion at Half-Rated Power	0.07%
Input Sensitivity/ Impedance (1kHz)	
VCR/DAT	300mV/40 k ohms
PHONO	3mV/47 k ohms
SEA Center Frequencies	63, 160, 400, 1k, 2.5k, 6.3k, 16kHz
SEA Control Range	± 12 dB ± 10 dB
CASSETTE DECK SECTION	
Frequency Response	
Metal:	30 - 17,000Hz
CrO_2:	30 - 16,000Hz
Normal:	30 - 15,000Hz
Wow and Flutter (WRMS)	0.09%
Dimensions	10-7/8 x 7-1/4 x 12-5/16 inches (275 x 183.5 x 321 mm)
Weight	14.8 lbs (6.7 kg)

CD Automatic Changer/Tuner

CD AUTOMATIC CHANGER SECTION	
CD capacity	7 discs
Dynamic Range	96 dB
Signal-to-Noise Ratio	102 dB
Wow and Flutter	Unmeasurable
TUNER SECTION	
FM	
Tuning range	87.5 MHz - 108.0 MHz
Usable Sensitivity	0.95μV/75 ohms (10.8dBf)
Signal-to-Noise Ratio (IHF-A Weight)	
MONO	80 dB
STEREO	73 dB
AM	
Tuning range	530 kHz - 1,710 kHz
Dimensions	10-7/8 x 7-1/4 x 12-1/4 inches (275 x 183.5 x 311 mm)
Weight	8.9 lbs (4.0 kg)

General

Power Requirements	AC 120 V ∿ 60 Hz
Poewr Consumption	135 W, 175VA

Design and specifications subject to change without notice.

JVC
VICTOR COMPANY OF JAPAN, LIMITED

EN

Printed in JAPAN
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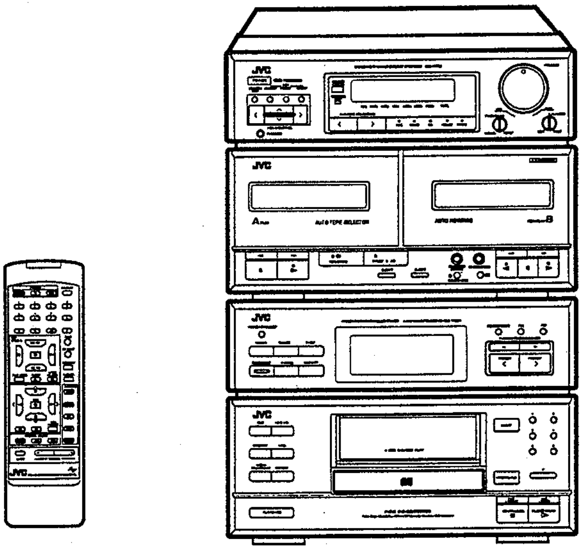
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

CA-MX77MTN

(Unit No. DX-MX77MTN)



COMPACT
disc
DIGITAL AUDIO

- * This unit should be connected with the XT-MX77MTN.
- * Refer to the CA-MX77MTN service manual (No.20334) for Instruction manual and Packing materials.

Contents

Safety Precautions 1-2
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Internal Connection
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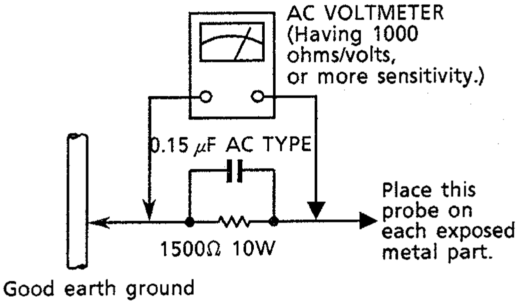
Disassembly Procedures 1-10
Adjustment Procedures(Deck) 1-14
Block Diagrams .... Insertion
Schematic Diagrams .... Insertion
Printed Circuit Boards .... Insertion
Parts List ..... Separate-volume Insertion

1033

No. 20335
Mar. 1992

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor.
     Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).


AC VOLTMETER
(Having 1000 ohms/volts, or more sensitivity.)
0.15 μF AC TYPE
1500Ω 10W
Place this probe on each exposed metal part.
Good earth ground

Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Description of ICs

■ HD614081SC34 (IC491) : Deck controller

1. Terminal Layout

HD614081SC34

Pin	Name	Pin	Name
1	NR.LED	64	A.FWD.LED
2	REV.MODE LED	63	A.REV.LED
3	A.SPEED UP	62	B.FWD.LED
4	B.SPEED UP	61	B.REV.LED
5	MUSIC IN	60	REC LED
6	B.FWD.REEL.MOTOR	59	NR.REC
7	B.REV.REEL.MOTOR	58	BIAS
8	B.REV.CAM.MOTOR	57	NR.OFF
9	B.FWD.CAM.MOTOR	56	REC.MUTE
10	A.CAM.SW-2	55	DCS IN
11	A.CAM.SW-1	54	DCS OUT
12	A.CAM.SW-0	53	GND
13	A.PULSE IN	52	4.19MHZ OSC IN
14	B.CAM.SW-2	51	4.19MHZ OSC IN
15	B.CAM.SW-1	50	TO VCC
16	B.CAM.SW-0	49	RESET IN
17	B.PULSE IN	48	KEY&SW.IN-4
18	POWER OFF IN	47	KEY&SW.IN-3
19	GND	46	KEY&SW.IN-2
20	A.FWD.REEL MOTOR	45	KEY&SW.IN-1
21	A.REV.REEL MOTOR	44	KEY OUT-4
22	A.REV.CAM MOTOR	43	KEY OUT-3
23	A.FWD.CAM MOTOR	42	KEY OUT-2
24	CHIP SELECT (EXP/DO)	41	KEY OUT-1
25	PLAY BACK EQ	40	SW OUT-2
26	B.PLAY/PAUSE	39	SW.OUT-1
27	PLAY MUTE	38	HI;SPEED DUBBING
28	CAP.MOTOR ON	37	HC
29	REC	36	HM
30	FADE CTRL.	35	HN
31	BCR	34	LC
32	+5V	33	LM

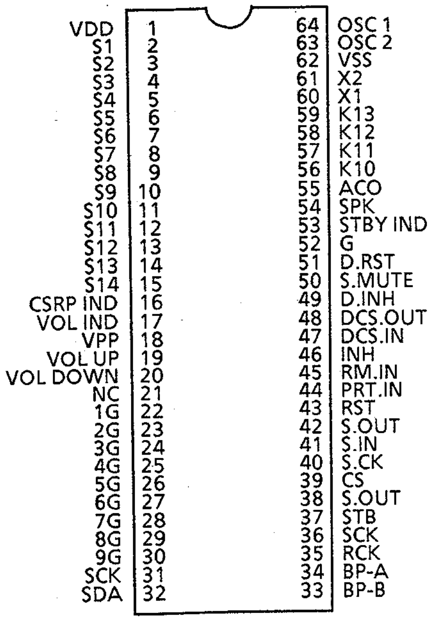
2. Key Matrix

	KEY IN 1 (PIN45)	KEY IN 2 (PIN46)	KEY IN3 (PIN47)	KEY IN4 (PIN48)
KEY OUT 1 (PIN41)	—	A◀◀	A▶▶	A▶
KEY OUT 2 (PIN42)	B◀	B◀◀	B▶▶	B▶
KEY OUT 3 (PIN43)	A■	B■	B○	B❚❚
KEY OUT 4 (PIN44)	A▶▶B	DOLBY	REV. MODE	CD.REC
SW OUT 1 (PIN39)	A CrO_2	B CrO_2	B METAL	—
SW OUT 2 (PIN40)	B PACK	REV REC	FWD REC	A PACK

3. Terminal Description

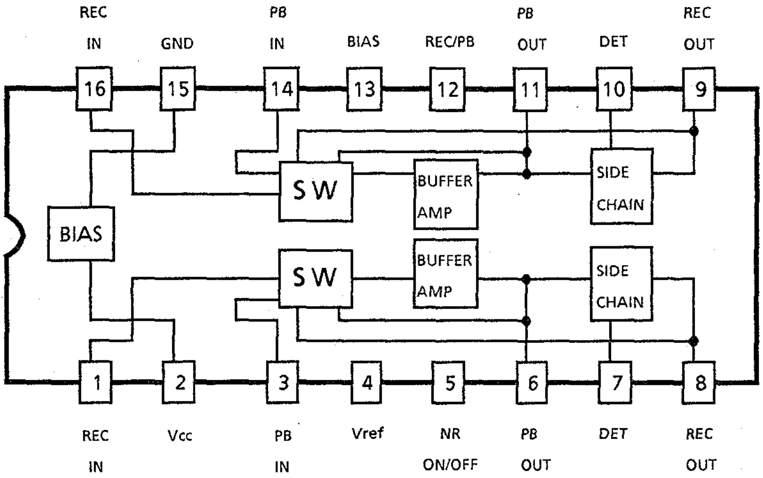
Pin NO.	Symbol	I/O	Function and Operations	Pin NO.	Symbol	I/O	Function and Operations
1	NR.LED	O	NR indicator signal output	33	LM	O	Rec. EQ control signal (Normal speed Metal)
2	REV.MO.LED	O	Reverse mode indicator signal output	34	LC	O	Rec. EQ control signal (Normal speed CrO_2)
3	A.SPEED UP	O	A deck reel speed control signal output	35	HN	O	Rec. EQ control signal (High speed Normal)
4	B.SPEED UP	O	B deck reel speed control signal output	36	HM	O	Rec. EQ control signal (High speed Metal)
5	MUSIC IN	I	Music scan signal input	37	HC	O	Rec.EQ control signal (High speed CrO_2)
6	B.FWD REEL	O	B deck forward reel motor control signal	38	HI-SPEED	O	Capstan&EQ control at high speed dubbing
7	B.REV.REEL	O	B deck reverse reel motor control signal	39	SW OUT-1	O	Leaf switch signal output
8	B.REV.CAM	O	B deck reverse cam motor control signal	40	SW-OUT-2	O	Leaf switch signal output
9	B.FWD.CAM	O	B deck forward cam motor control signal	41	KEY OUT-1	O	Key matrix output
10	A.CAM SW-2	O	Cam switch signal from A deck	42	KEY OUT-2	O	Key matrix output
11	A.CAM SW-1	O	Cam switch signal from A deck	43	KEY OUT-3	O	Key matrix output
12	A.CAM SW-0	O	Cam switch signal from A deck	44	KEY OUT-4	O	Key matrix output
13	A.PULSE IN	I	A deck reel pulse input	45	KEY&SW IN-1	I	Key matrix & leaf switch input
14	B.CAM SW-2	O	Cam switch signal from B deck	46	KEY&SW IN-2	I	Key matrix & leaf switch input
15	B.CAM SW-1	O	Cam switch signal from B deck	47	KEY&SW IN-3	I	Key matrix & leaf switch input
16	B.CAM SW-0	O	Cam switch signal from B deck	48	KEY&SW IN-4	I	Key matrix & leaf switch input
17	B PULSE IN	I	B deck reel pulse input	49	RESET IN	I	Reset signal input
18	POWER OFF IN	I	Power off signal input	50	TO VCC	--	PULL UP (+5V)
19	GND	--	Ground	51	OSC	I	Clock oscillation input (4.19MHz)
20	A.FWD.REEL	O	A deck forward reel motor control signal	52	OSC	O	Clock oscillation output (4.19MHz)
21	A.REV.REEL	O	A deck reverse reel motor control signal	53	GND	--	Ground
22	A.REV.CAM	O	A deck reverse cam control signal	54	DSC OUT	O	Compulink signal output
23	A.FWD.CAM	O	A deck forward cam control signal	55	DCS IN	I	Compulink signal input
24	CHIP SELECT	--	Connected to +5V	56	REC.MUTE	O	Recording mute control signal
25	PLAYBACK EQ	O	Playback equalizer control signal	57	NR.OFF	O	NR on/off control signal
26	B.PLAYPAUSE	O	Deck switching signal	58	BIAS	O	Bias on/off control signal
27	PLAY MUTE	O	Deck out mute signal	59	NR.REC	O	NR rec/play control signal
28	CAP,MOTOR	O	Capstan motor on/off control signal	60	REC LED	O	Recording indicator output
29	REC	O	Recording control signal	61	B.REV LED	O	B deck reverse LED indicator output
30	FADE CTRL.	--	Not used	62	B.FWD LED	O	B deck forward LED indicator output
31	BCR	O	Bias current control signal	63	A.REV LED	O	A deck reverse LED indicator output
32	+5V	--	Power supply voltage (+5V)	64	A.FWD LED	O	A deck forward LED indicator output

■ MN171202JPA (IC901) : FL & System controller

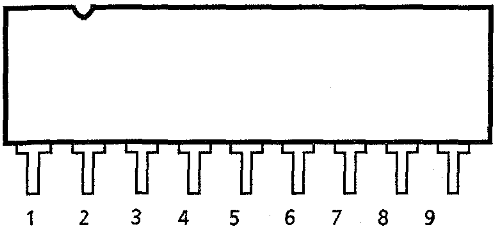

VDD 1
S1 2
S2 3
S3 4
S4 5
S5 6
S6 7
S7 8
S8 9
S9 10
S10 11
S11 12
S12 13
S13 14
S14 15
CSRP IND 16
VOL IND 17
VPP 18
VOL UP 19
VOL DOWN 20
NC 21
1G 22
2G 23
3G 24
4G 25
5G 26
6G 27
7G 28
8G 29
9G 30
SCK 31
SDA 32
64 OSC 1
63 OSC 2
62 VSS
61 X2
60 X1
59 K13
58 K12
57 K11
56 K10
55 ACO
54 SPK
53 STBY IND
52 G
51 D.RST
50 S.MUTE
49 D.INH
48 DCS.OUT
47 DCS.IN
46 INH
45 RM.IN
44 PRT.IN
43 RST
42 S.OUT
41 S.IN
40 S.CK
39 CS
38 S.OUT
37 STB
36 SCK
35 RCK
34 BP-A
33 BP-B

No.	Symbol	I/O	Functions	No.	Symbol	I/O	Functions
1	VDD	-	Power supply(+ 5V)	42	S.OUT	O	Data signal output for IC932
2~15	S1~S14	O	FL segment control	43	RST	I	Reset signal input
16	CSRP IND	O	CSRP INDICATOR CONTROL	44	PRT.IN	I	Detection signal input for protector
17	VOL IND	O	Volume indicator control	45	RM.IN	I	Remote control signal input
18	vpp	O	Power supply for FL display	46	INH	I	Inhibit signal
19	VOL UP	O	Volume control signal output	47	DCS IN	I	Compu-link signal input
20	VOL DOWN	O	Volume control signal output	48	DCS OUT	O	Compu-link signal output
21	NC	-	Non connection	49	D.INH	O	Power ON/OFF control signal
22~30	1G~9G	O	FL grid control	50	S.MUTE	O	Mute signal
31	SCK	O	Serial clock output	51	D.RST	O	Reset signal output for IC491
32	SDA	O	Serial data output	52	G	O	Output signal for shift resistor
33	BP-B	O	Control signal output for IC931	53	STBY IND	I	Standby indicator signal
34	BP-A	O	Control signal output for IC931	54	SPK	O	Speaker relays ON/OFF control signal
35	RCK	O	Read clock signal output for IC931	55	ACO	O	Power ON/OFF control signal
36	SCK(CLK)	O	Clock signal output for IC601	55~96	KI0~KI3	I	Key matrix input
37	STB	O	Strobe signal output for IC601	60	X1	-	Connected to ground
38	S.OUT	O	Data signal output for IC601	61	X2	-	Non connection
39	CS	O	Chip selector signal output for IC932	62	Vss	-	Connected to ground
40	S.CK	O	Clock signal output for IC921	63	OSC 2	O	Oscillator output
41	S.IN	I	Data signal intput for IC932	64	OSC 1	I	Oscillator input

■ HA12136A (IC351): Noise Reduction Amplifier

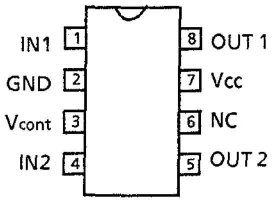

REC IN
GND
PB IN
BIAS
REC/PB
PB OUT
DET
REC OUT
16
15
14
13
12
11
10
9
SW
BUFFER AMP
SIDE CHAIN
BIAS
SW
BUFFER AMP
SIDE CHAIN
1
2
3
4
5
6
7
8
REC IN
Vcc
PB IN
Vref
NR ON/OFF
PB OUT
DET
REC OUT

■ BA6218 (IC451,452,453,454): Reversible motor driver



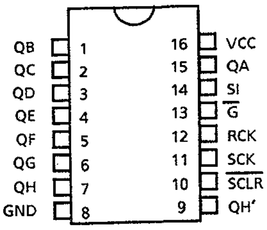
Pin 3(IN)	Pin 1(IN)	Pin 7(OUT)	Pin 9(OUT)
H	L	L	H
L	H	H	L
H	H	L	L
L	L	OPEN	OPEN

■ LB1639-CV (IC503): Motor Driver


IN1 1
GND 2
Vcont 3
IN2 4
8 OUT 1
7 Vcc
6 NC
5 OUT 2

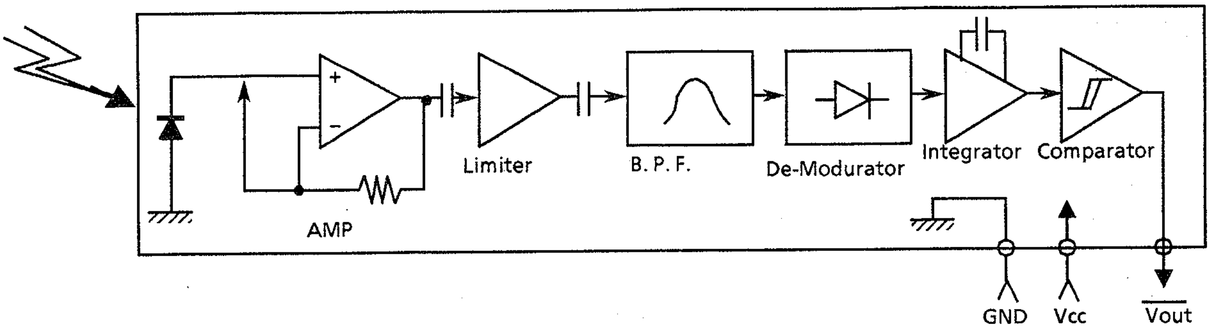
IN 1	IN 2	OUT 1	OUT 2	MOTOR
H	L	H	L	CLOCKWISE
L	H	L	H	COUNTER-CLOCKWISE
H	H	OFF	OFF	WAITING
L	L	OFF	OFF	WAITING

■ TC74HC595AP (IC921) : Shift resister


QB 1
QC 2
QD 3
QE 4
QF 5
QG 6
QH 7
GND 8
16 VCC
15 QA
14 SI
13 $\overline{G}$
12 RCK
11 SCK
10 $\overline{SCLR}$
9 QH'

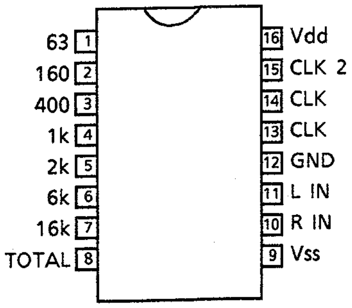
Input					Function
SI	SCK	SCLR	RCK	G	
×	×	×	×	H	Output(QA~QH) disable
×	×	×	×	L	Output(QA~QH) enable
×	×	L	×	×	Shift resister is cleared .
L	↑	H	×	×	Shift resister in initial stage is "L" .In the other stages, data from the former stage is stored .
H	↑	H	×	×	Shift resister in initial stage is "H" .In the other stages, data from the former stage is stored .
×	↓	H	×	×	Shift resister does not change.
×	×	×	↑	×	Shift resister data is stored in the storage resister .
×	×	×	↓	×	Storage resister does not change

■ SPS-420-1 (IC922) : Receiver for Remote Controller


+
−
AMP
Limiter
B. P. F.
De-Modurator
Integrator
Comparator
GND
Vcc
$\overline{\text{Vout}}$

■ XR1091ECP (IC930) : Display Filter

1. Terminal Layout (Top View)

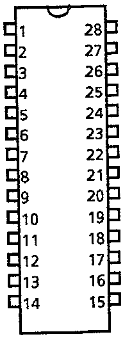

63 1
160 2
400 3
1k 4
2k 5
6k 6
16k 7
TOTAL 8
16 Vdd
15 CLK 2
14 CLK
13 CLK
12 GND
11 L IN
10 R IN
9 Vss

2. Pin Functions

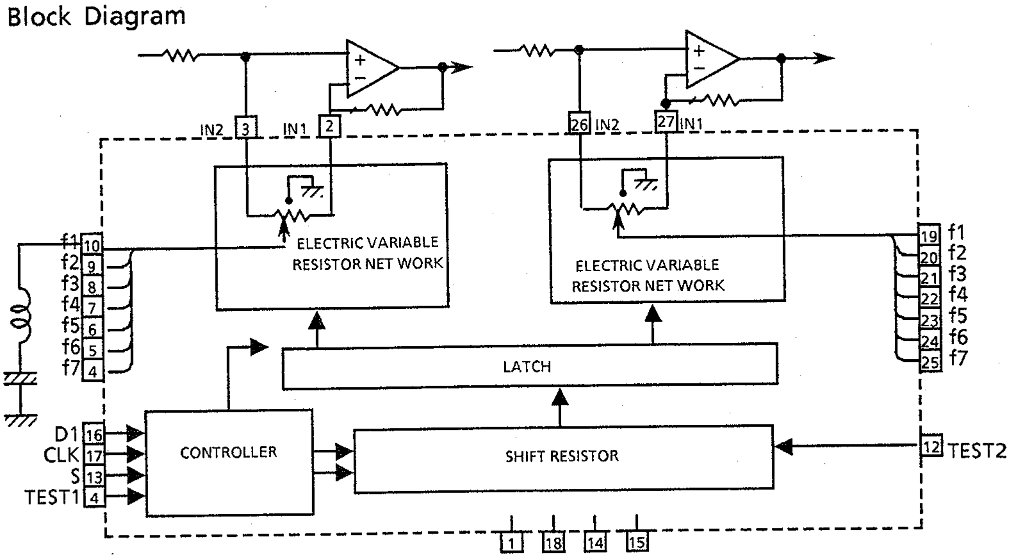
Pin No.	Symbol	Descriptions
1~7	63,160,400,1k,2k,6.3k,16k	Each peak hold output of each frequency's band-pass filter
8	TOTAL	Total frequency output (peak hold)
9	Vss	Power supply (- 6V)
10	R IN	Right channel input
11	L IN	Left channel input : Connecting to ground
12	GND	Ground terminal
13	CLK	Connecting capacitor for clock
14	CLK	Connecting resistor to pin 13 for clock
15	CLK / 2	1/2 clock output
16	Vdd	Power supply (+ 6V)

■ LC7522 (IC641) : Variable Resistor for SEA Control

1. Terminal Layout (Top View)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
28
27
26
25
24
23
22
21
20
19
18
17
16
15

2. Block Diagram

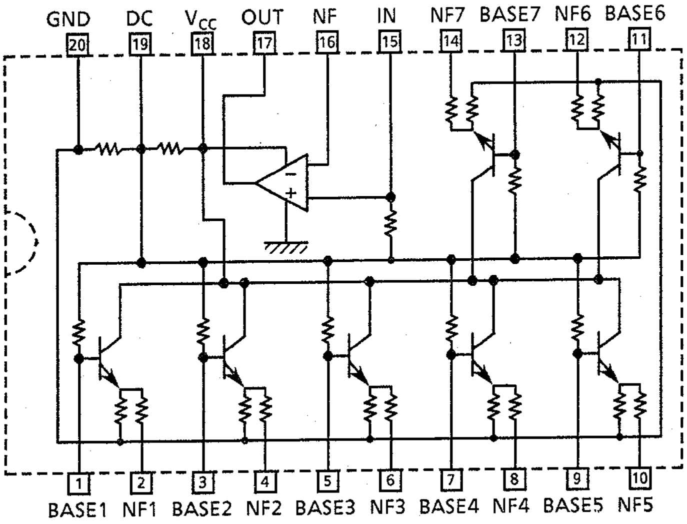

IN2
3
IN1
2
26
IN2
27
IN1
ELECTRIC VARIABLE RESISTOR NET WORK
ELECTRIC VARIABLE RESISTOR NET WORK
f1 10
f2 9
f3 8
f4 7
f5 6
f6 5
f7 4
19 f1
20 f2
21 f3
22 f4
23 f5
24 f6
25 f7
LATCH
CONTROLLER
SHIFT RESISTOR
D1 16
CLK 17
S 13
TEST1 4
12 TEST2
1
18
14
15

3. Pin Functions

Pin No.	Pin Name	Functions
1 18 14 15	V_{DD} VSS VEE VCC	Power supply +7V for audio signal Ground . Power supply −7V for audio signal. Power supply +5V
2,27 3, 26	IN 1 IN 2	Audio signal input The inversion signal of the operational amplifier inputs to IN 1 normally. The non-inversion signal of the operational amplifier inputs to IN 2 normally.
16	SDA	Data input from the CPU. Schmitt inverter type
17	SCK	Clock signal input from the CPU. Schmitt inverter type
4~10 19~25	f1~f7	For connect to band-pass filter. f1~f7x2 (Left and Right)
11 12	TEST 1 TEST 2	Not use Not use
13	S	Chip Select
28	NC	Not use

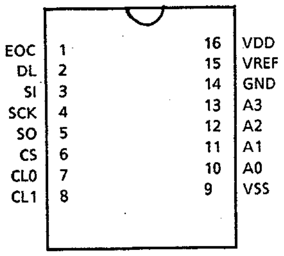
■ LA3607S (IC643,644) :S.E.A. Graphic Equalizer

It makes inductive characteristic instead of coil.

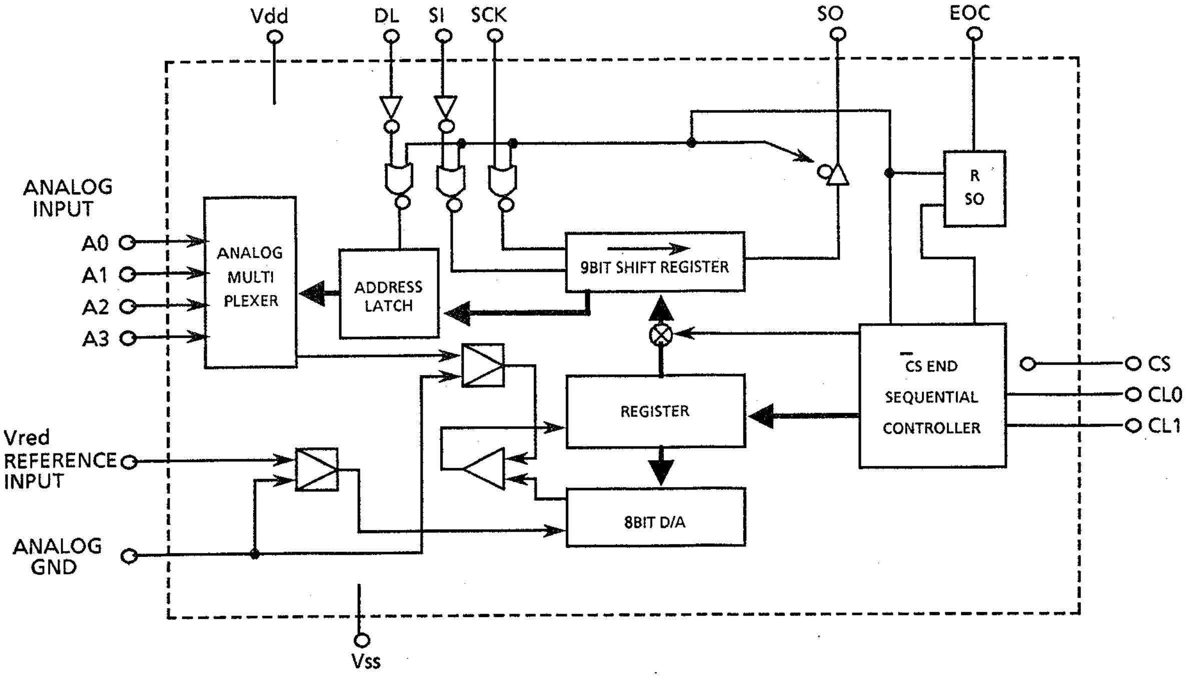

GND
20
DC
19
V_{CC}
18
OUT
17
NF
16
IN
15
NF7
14
BASE7
13
NF6
12
BASE6
11
1
BASE1
2
NF1
3
BASE2
4
NF2
5
BASE3
6
NF3
7
BASE4
8
NF4
9
BASE5
10
NF5

■ μPD7001C (IC932) : Analog to Digital Converter

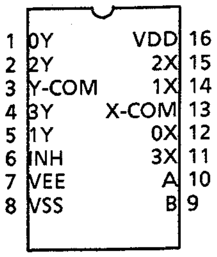
1. Terminal Layout


EOC 1
DL 2
SI 3
SCK 4
SO 5
CS 6
CL0 7
CL1 8
16 VDD
15 VREF
14 GND
13 A3
12 A2
11 A1
10 A0
9 VSS

2. Block Diagram


Vdd
DL
SI
SCK
SO
EOC
ANALOG INPUT
A0
A1
A2
A3
ANALOG MULTI PLEXER
ADDRESS LATCH
9BIT SHIFT REGISTER
R SO
CS END SEQUENTIAL CONTROLLER
CS
CL0
CL1
REGISTER
8BIT D/A
Vred REFERENCE INPUT
ANALOG GND
Vss

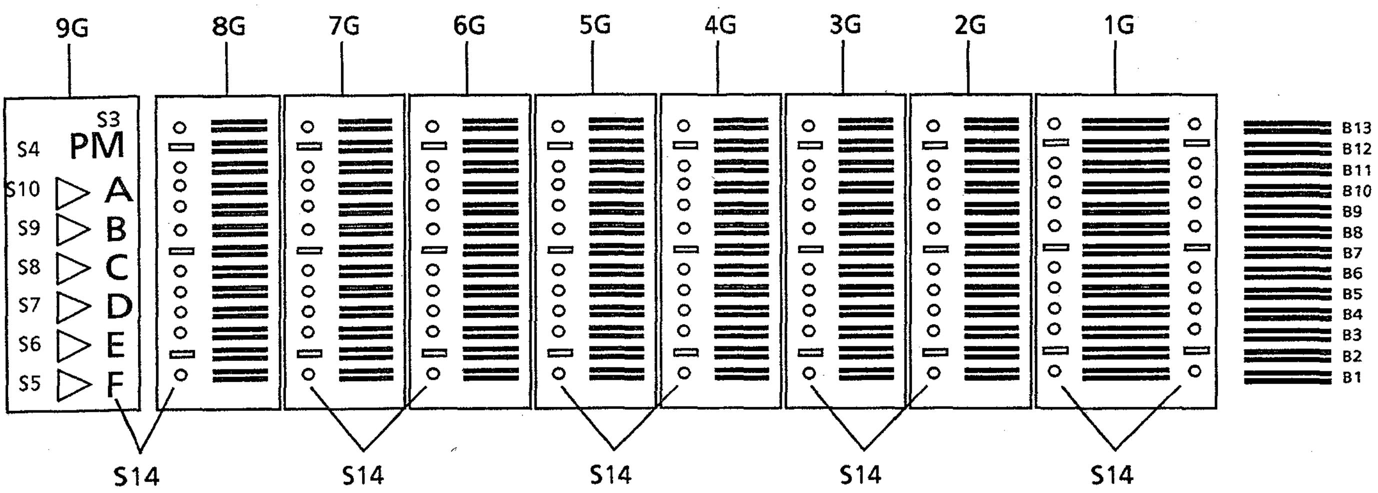
■ TC4052BP (IC931) : Differential 4 channel multiplexer


1 0Y
2 2Y
3 Y-COM
4 3Y
5 1Y
6 INH
7 VEE
8 VSS
VDD 16
2X 15
1X 14
X-COM 13
0X 12
3X 11
A 10
B 9

CONTROL INPUT			"ON" CHANNEL
INHIBIT	B	A	
L	L	L	0X,0Y
L	L	H	1X,1Y
L	H	L	2X,2Y
L	H	H	3X,3Y
L	L	L	--
L	L	H	--
L	H	L	--
L	H	H	--
H	Don't care	Don't care	None

Internal Connections of the FL Display Tube

■ ELU0001-092 : FL921


9G
8G
7G
6G
5G
4G
3G
2G
1G
S3
S4
PM
S10
A
S9
B
S8
C
S7
D
S6
E
S5
F
S14
S14
S14
S14
S14
B13
B12
B11
B10
B9
B8
B7
B6
B5
B4
B3
B2
B1

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Connection	F1	F1	NP	NP	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC	S14	S1	S2	S3	S4	S5	S6	S7

26	27	28	29	30	31	32	33	34	35	36
NC	S8	S9	S10	S11	S12	S13	NP	NP	F2	F2

F : Filament S : Segment G : Grid NP : No Pin NC : None Connection

	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	--	B1	B1	B1	B1	B1	B1	B1	B1
S2	--	B2	B2	B2	B2	B2	B2	B2	B2
S3	M (S3)	B3	B3	B3	B3	B3	B3	B3	B3
S4	P (S4)	B4	B4	B4	B4	B4	B4	B4	B4
S5	▶ (S5)	B5	B5	B5	B5	B5	B5	B5	B5
S6	▶ (S6)	B6	B6	B6	B6	B6	B6	B6	B6
S7	▶ (S7)	B7	B7	B7	B7	B7	B7	B7	B7
S8	▶ (S8)	B8	B8	B8	B8	B8	B8	B8	B8
S9	▶ (S9)	B9	B9	B9	B9	B9	B9	B9	B9
S10	▶ (S10)	B10	B10	B10	B10	B10	B10	B10	B10
S11	--	B11	B11	B11	B11	B11	B11	B11	B11
S12	--	B12	B12	B12	B12	B12	B12	B12	B12
S13	--	B13	B13	B13	B13	B13	B13	B13	B13
S14	A B C D E F	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●	● — ● ● ● ● — ● ● ● ● — ●

Disassembly Procedures

1. Removing the metal Cover

(1) Remove the 2 screws fastening both sides of the metal cover and the 2 screws fastening the rear side.
(2) Remove the metal cover.

2. Removing the Front Panel assembly

(1) Remove the metal cover.
(2) Remove the volume knob and the nut fastening the volume and disconnect the P929.
(3) Remove the screw Ⓐ.
(4) Cut the Tie Band Ⓒ.
(5) Disconnect the P331, P332, P333, P334 (on ENB-157-6), P321, P972 and the flat wire JB901.
(6) Release the 3 hooks Ⓑ and remove the front panel assembly from the chassis.

3. Removing the Heat sink cover

(1) Remove the 2 screws Ⓓ. (Fig. 5)
(2) Remove the cover.

4. Removing the Rear panel

(1) Remove the Front Panel assembly.
(2) Remove the heat sink cover.
(3) Remove the 12 screws Ⓔ. (Fig. 5)

5. Removing the Power IC

(1) Remove the metal cover.
(2) Remove the rear panel.
(3) Remove the 3 PC boards (ENJ-063-2, ENJ-063-3, ENJ-063-4) with slow lifting.
(4) Remove the defective IC.

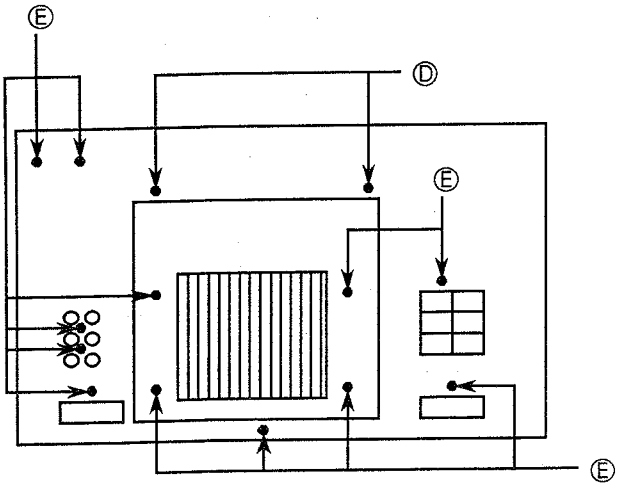


Fig. 5 Rear view

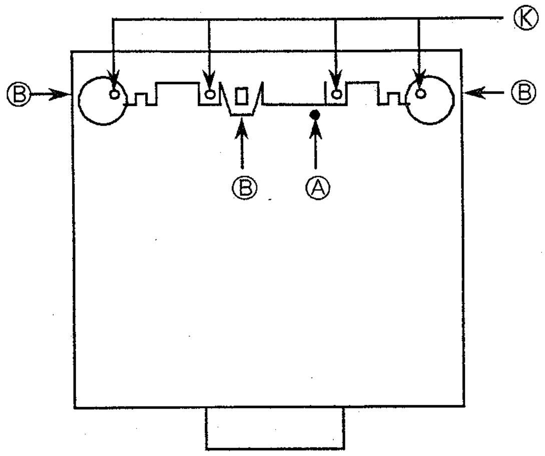


Fig. 1 Bottom view

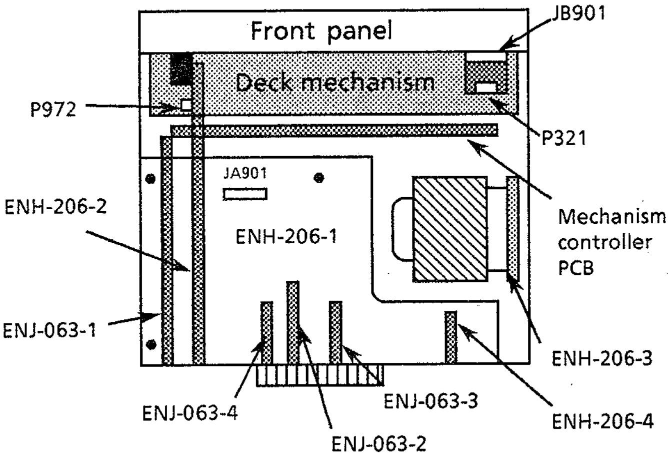

Front panel
JB901
Deck mechanism
P972
P321
JA901
ENH-206-2
ENH-206-1
Mechanism controller PCB
ENJ-063-1
ENH-206-3
ENJ-063-4
ENJ-063-3
ENH-206-4
ENJ-063-2

Fig. 2 Top view

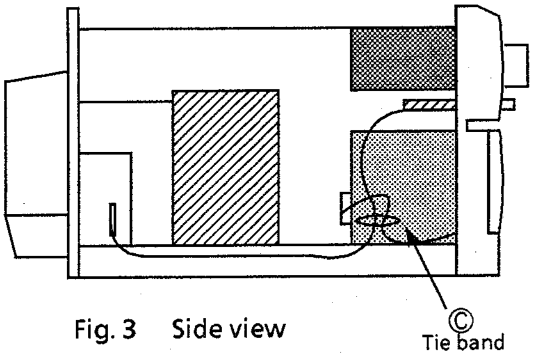


Fig. 3 Side view

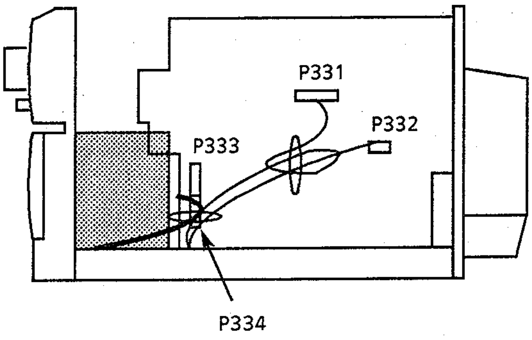

P331
P332
P333
P334

Fig. 4 Side view

6. Removing the Front PC Board assembly (ENB-157-1,ENB-157-2)

(1) Remove the metal cover.
(2) Remove the front panel assembly.
(3) Remove the BALANCE and TWIN BASS knobs.
(4) Remove the screw Ⓕfastening the headphone PC Board(ENB-157-6).
(5) Remove the 7 screws fixing the assembly (Fig. 6). The fasteners can release.

7. Removing the mechanism assembly

(1) Remove the metal cover.
(2) Remove the front panel assembly.
(3) Disconnect the P492and P493.
(4) Remove the 8 blue coloured screws Ⓗ,Ⓣ fixing the mechanism assembly.
(5) Open the cassette doors and remove the cassette mechanism assembly.

Note : The cassette mechanism is grounded through the bottom plate. Therefore, use a jumper between the chassis and the mechanism assembly when operating. This mechanism is also designed for pack sensing, then use a cassette tape for checking.

8. Removing the Cassette holder

(1) Remove the cassette mechanism assembly.
(2) Remove the dampers.
(3) Remove the holder spring from the holder bracket.
(4) Remove the cassette holder from the holder bracket.

9. Removing the Cassette lid

(1) Open the doors and lift the cassette lids up in the arrow direction .

10. Removing the Cassette operation PC Board (ENB-157-4)

(1) Remove the cassette mechanism assembly.
(2) Remove the cassette holder
(3) Remove the 4 screws Ⓚ(Fig. 1) and remove the holder brackets.
(4) Remove the screw fastening the EJECT knob holder.
(5) Remove the 4 screws fastening the PC Board.

11. Removing the Mechanism controller PCBoard (ENB-157-3)

(1) Remove the front panel assembly.
(2) Remove the screw Ⓘ and release the hookⒿ.
(3) Disconnect the flat wires and connectors.

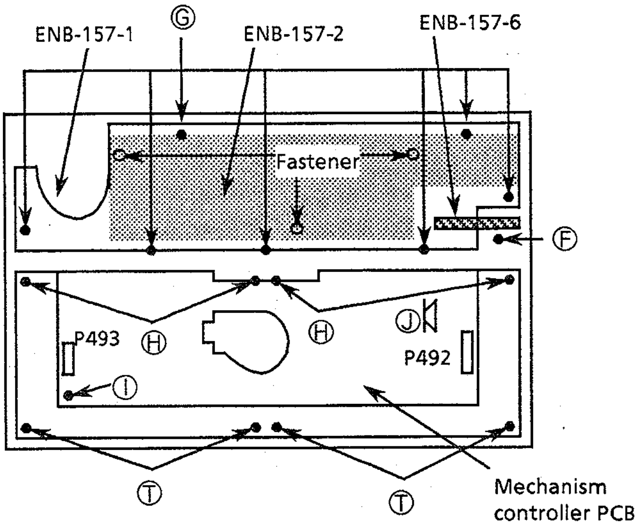


Fig. 6 Behind the front panel

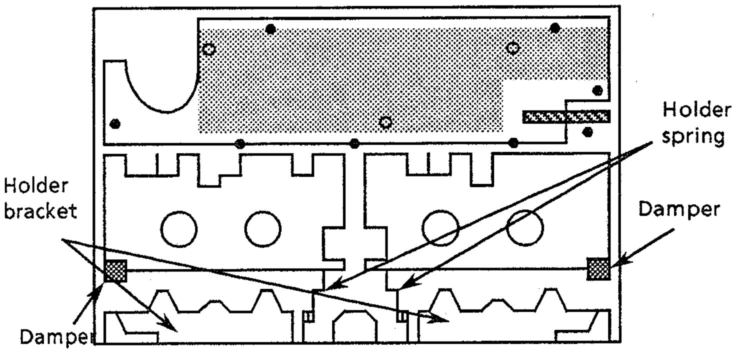


Fig. 7 After removing the mechanism assembly

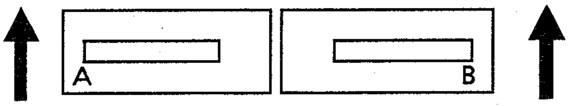


Fig. 8 Cassette lids

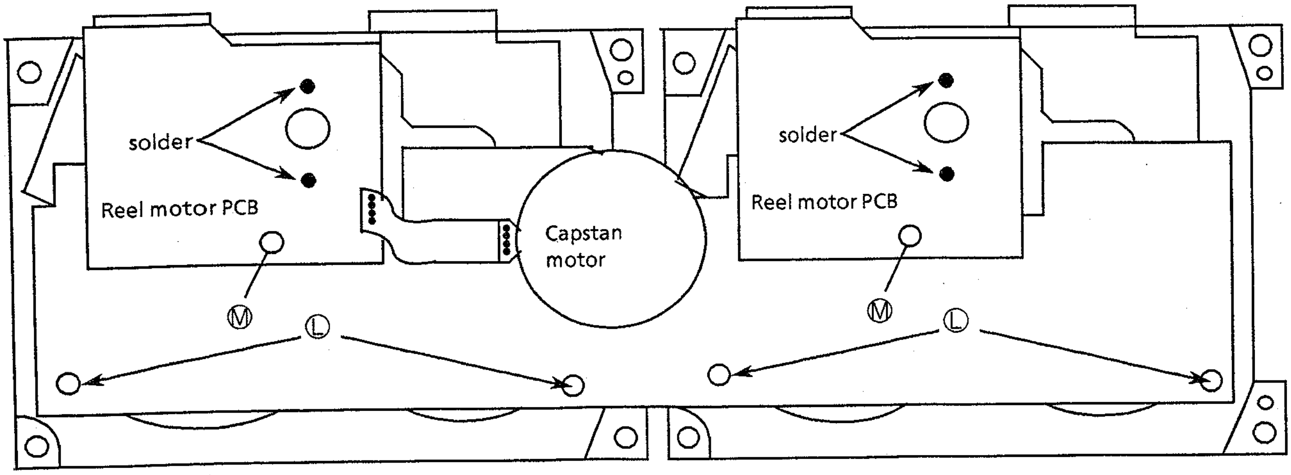


Fig. 9 Rear view of the cassette mechanism

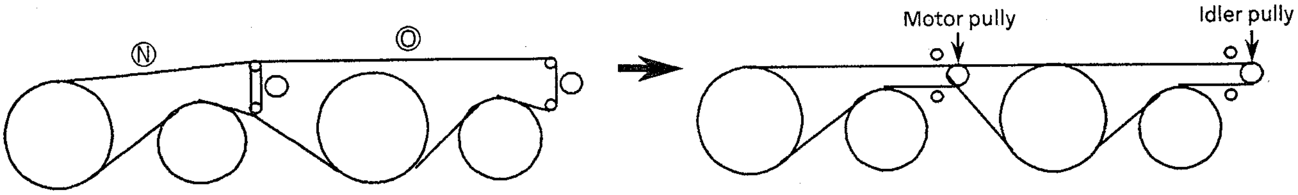


Fig. 10 How to put the belts

12. Removing the Reel motor PC Board

(1) Remove the mechanism assembly.
(2) Remove the mechanism controller PC Board.
(3) Remove the screws Ⓜ fixing the reel motor PC Boards (Fig.9).
(4) Unsolder the reel motor terminals.
(5) Remove the PC Board.

13. Removing the Flywheel

(1) Remove the mechanism assembly.
(2) Remove the mechanism controller PC Board.
(3) Remove the reel motor PC Boards.
(4) Remove the 4 screws Ⓛ fixing the bracket on which the capstan motor is installed (Fig. 9).
(5) Remove the bracket and the belts.
(6) Remove the flywheel .

Installing

Install the flywheel and the belts to the mechanism as shown in fig. 10. (When putting the belts, put the belt Ⓝ first.)

At last, install the bracket with the capstan motor and put the belts on the pulleys.

14. Removing the CAM switch PC Board

(1) Remove the flywheels.
(2) Release the hook fixing the cam switch PC Board and remove the PC Board.
  * When installing the cam switch PC Board, assemble the PC Board so that the part Ⓟ meets part Ⓠ. Fig. 11

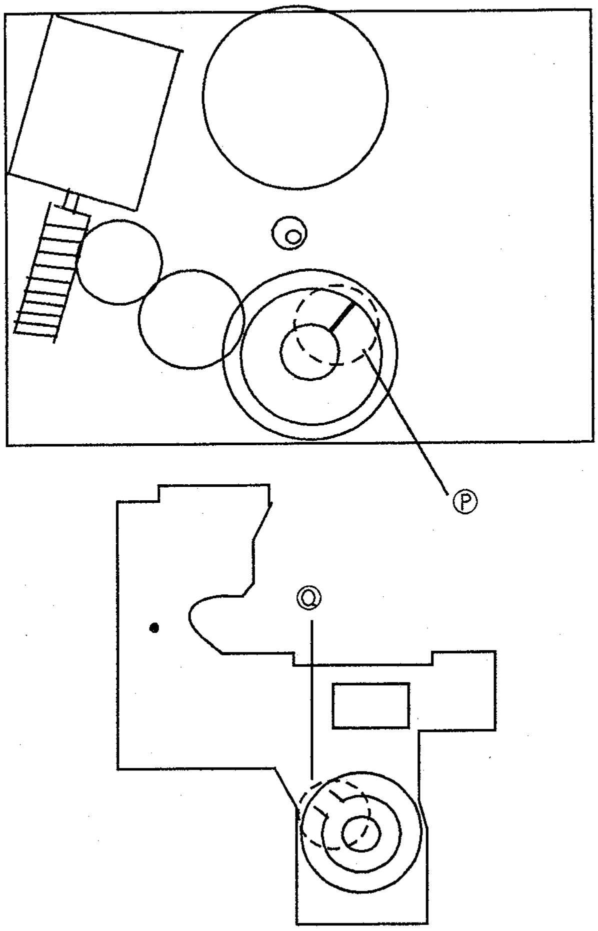


Fig. 11 Gear position

15. Removing the Head assembly

(1) Remove the cassette mechanism assembly.
(2) Unsolder the flexible wire on the relay PC Board and remove the 2 screws Ⓢ fixing the head assembly (Fig. 13,14).
  * Refer to the Fig.12 when installing.

16. Removing the Pinch roller arm assembly

(1) Release the return springs from the hooks (Fig.14).
(2) Remove the hooks fixing the pinch roller arm assembly and remove the pinch roller assembly (Fig. 13).

17. Removing the Reel motor

(1) Remove the mechanism assembly.
(2) Remove the reel motor PC Board.
(3) Remove the FR arm assembly (Fig. 14).
(4) Remove the screws Ⓡ fixing the motor.
(5) Release the hooks fixing the motor and remove the motor.

18. Removing the Capstan motor

(1) Remove the mechanism assembly.
(2) Remove the mechanism controller PC Board.
(3) Remove the reel motor PC Board.
(4) Remove the 4 screws Ⓛ fixing the bracket (Fig. 9).
(5) Release the hooks fixing the bracket and remove the capstan motor with the bracket.
(6) Remove the 2 screws fixing the motor on the bracket and remove the motor from the bracket.

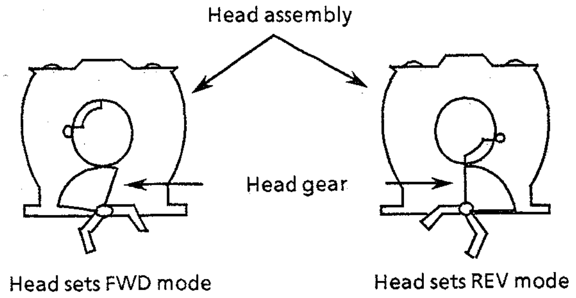

Head assembly
Head gear
Head sets FWD mode
Head sets REV mode

Fig. 12 Bottom view of the head assembly

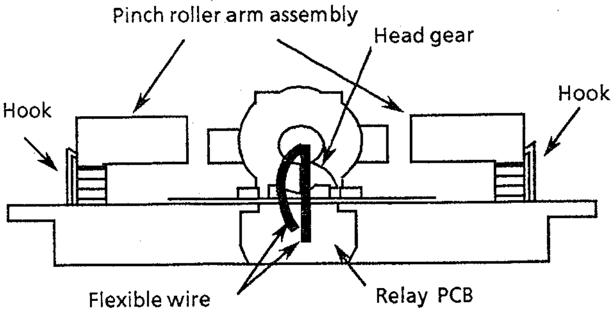

Pinch roller arm assembly
Head gear
Hook
Hook
Flexible wire
Relay PCB

Fig. 13 Bottom view of the cassette mechanism

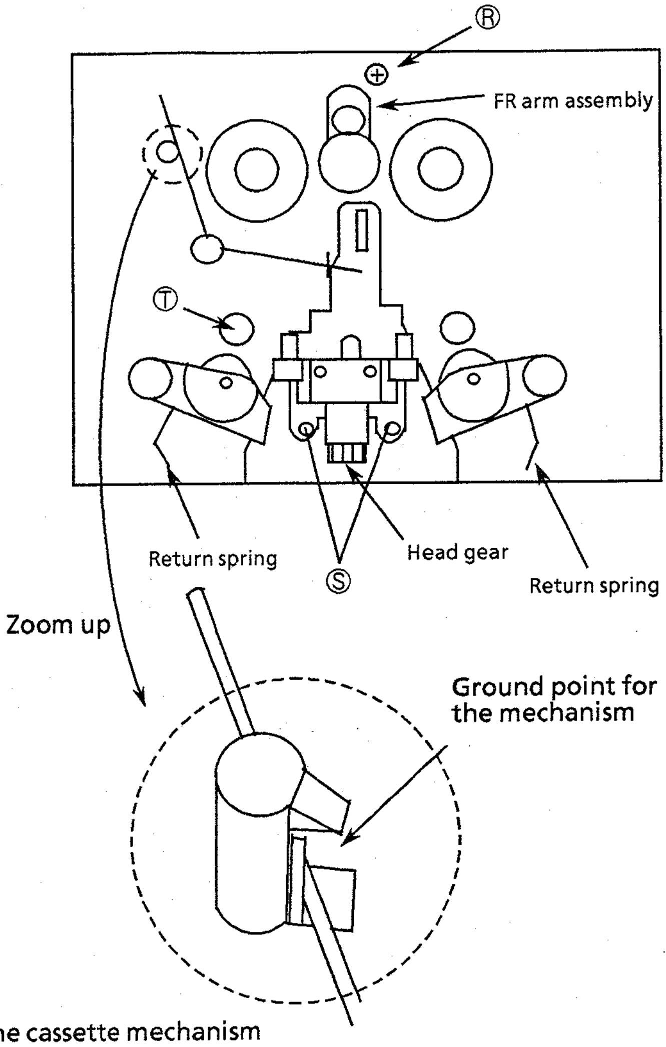

Ⓡ
FR arm assembly
Ⓣ
Return spring
Head gear
Ⓢ
Return spring
Zoom up
Ground point for the mechanism

Fig. 14 Front view of the cassette mechanism

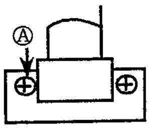
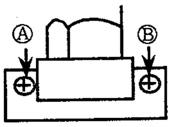
Adjustment Procedures (Cassette Deck)

1. Measuring instruments for Adjustment

(1) Audio frequency signal generator (0dbs output at the 600 ohm output terminal from 50Hz to 20KHz)
(2) Attenuator (600 ohm impedance)
(3) Electronic voltmeter
(4) STANDARD TAPES
  VTT-704(head azimuth adjustment)
  VTT-712 (tape speed , wow & flutter)
  VTT-724 (Reference level)
  VTT-703L)Frequency response)
(5) Recording standard tapes
  AC-513 (CrO2), TMT-7046 (Normal) or equivalent. (Use JVC standard tape)
(6) 600-ohm resistor for attenuator matching
(7) WOW & FLUTTER meter with frequency counter
(8) Distortion meter with band-pass filter
(9) Torque gauge : TW-2131,TW-2231
(10) C-120 tape (for checking the tape running)

2. Adjustment and repairing the mechanism

(Adjust and inspect the mechanism before adjusting the electronic circuit)

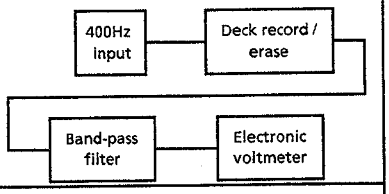
Item	Adjustment method	Standard value	Remarks
Adjusting azimuth of rec/play head	1. Connect an electronic voltmeter to the SPK OUT terminal. (about 1 volt output) 2. Play back VTT-704.		1) When the specified characteristic cannot be obtained because of head wear, cut wire, excessive magnetization, etc., replace the head assembly and adjust the head azimuth. Also, perform the adjustment of the playback level, recording bias current, recording level, etc. 2) When there is the difference of more than 3 ~ 4 dB between left and right output levels, replace the head assembly to avoid complaints.
A mechanism 	3. Adjust screw Ⓐ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed.	Maximum	
	4. After making the adjustment,apply screw lock to prevent screw Ⓐ coming loose .		
B mechanism 	5. Adjust screw Ⓐ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed.	Maximum	
	6. Adjust screw Ⓑ so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed.	Maximum	
	7. After making the adjustment,apply screw lock to prevent screws Ⓐ and Ⓑ coming loose .		
Playback torque	Measure the torque in the playback mode using the torque measurement cassette TW-2131.	26 ~ 62 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Fast forward torque	Measure the torque in the fast forward mode by the TW-2231.	80 ~ 200 g-cm	When the standard torque cannot be obtained,replace the FR arm assembly or motor.
Rewind torque	Measure the torque in the rewind mode by the TW-2231.	80~ 200 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Wow & flutter	Play back VTT-712 and connect the wow & flutter meter to the SPK OUT terminals , its reading should be within 0.2% (WTD).		As a complaint may occur if the wow & flutter fluctuates by 0.1% even though it is allowed in the standard, repairing is required.

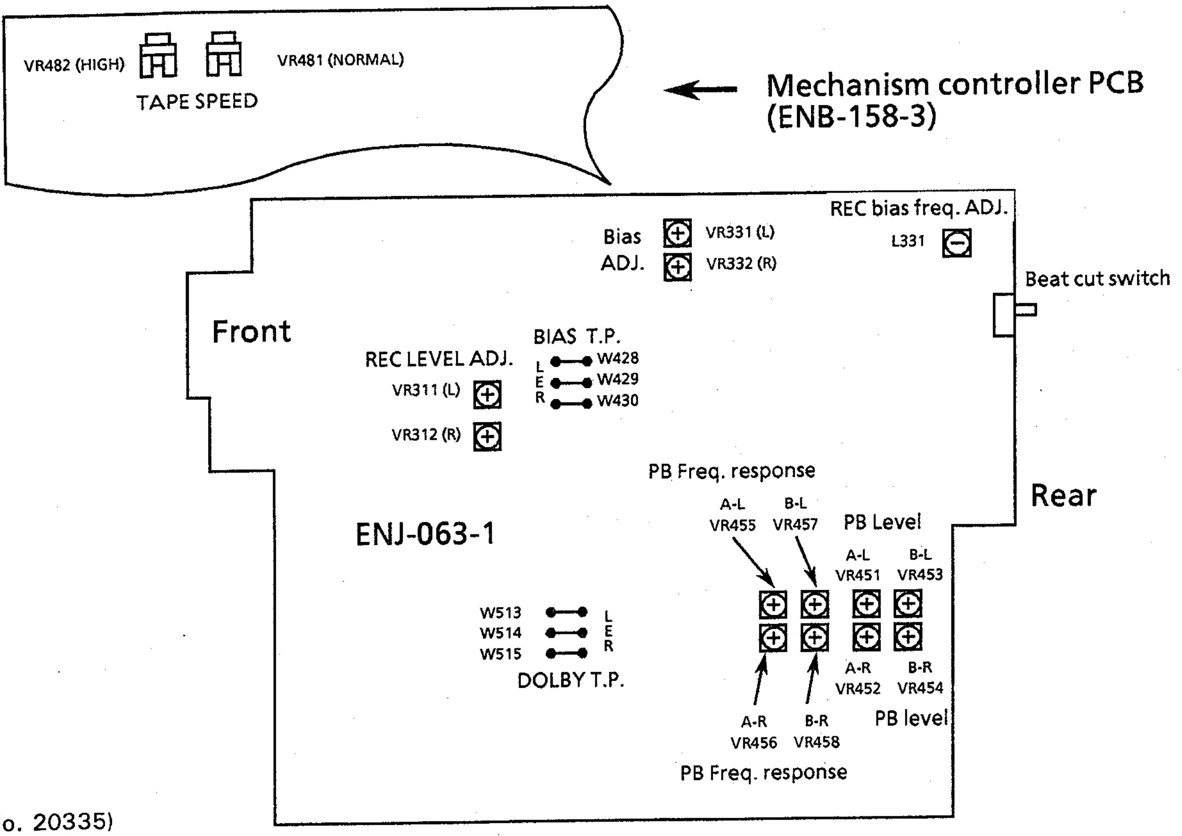
3. Electrical Circuit Adjustments

Make the following adjustments after adjusting the head azimuth.
In principle, the adjustments should be made in the following sequence.
Set the NR switch to OFF and the BEAT CUT switch to "1".
Adjustments marked with an asterisk (*) should always be made after the head is replaced.

Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
Motor speed	1. Play back VTT-712 and connect a frequency counter to the speaker terminals.	Semi-fixed resistor on the main PC Board		Connect a wow & flutter meter with a built-in frequency counter to the speaker terminals.
	2. Normal speed Adjustment 1) Mechanism B Play back deck B and adjust the semi-fixed resistor VR481on ENB - 157 - 3. 2) Mechanism A Play back deck A and confirm that the value of deck B ±51Hz.	VR481 VR265	3,000 Hz ±10Hz	Adjust the normal speed first, and perform the high speed adjustment.
	3. High-speed adjustment 1) Mechanism B Play back deck B and adjust the semi-fixed resistor VR482 on ENB - 157 - 3.	VR482	6,000Hz ±20Hz	
* 1 Playback level	Play back VTT-724 (1 kHz) and connect an electronic voltmeter between W513 and E(W514) of DOLBY TP for left, or W515 and E(W514) for right. And then, adjust the semi - fixed resistors. Play back VTT-703L (10 kHz) and connect an electronic voltmeter between W513 and E(W514) of DOLBY TP for left, or W515 and E(W514) for right. And then, adjust the semi - fixed resistors.	**A Deck** (1KHz) L: VR451 R: VR452 (10KHz) L: VR455 R: VR456 **B Deck** (1KHz) L: VR453 R: VR454 (10KHz) L: VR457 R: VR458	400mV 130mV 400mV 130mV	The playback level varies when the head is replaced so should be adjusted. Use an electronic voltmeter with an impedance of 100 kΩ or more.
* 2 Recording bias frequency	Connect a frequency counter between W428(or W430) and W429 of BIAS TP, and perform a recording.	L331	100 kHz ±5 kHz	Set the BEAT CUT SWITCH to "1" when using a metal tape.
* 3 Recording frequency Response	Record 1 kHz/12.5 kHz with the NR switch off and input 30mV to VCR/ DAT. While playing back these recorded signals, adjust the variation of the 12.5 kHz outputs from the 1kHz output to the standard value using VR331 and VR332. (Basically, adjust so that the 1 kHz and 12.5kHz outputs are flat.)	(L)VR331 (R)VR332	0±3 dB for 12.5 kHz with 1 kHz as the standard.	1) The recording and playback frequencies of a cassette deck are adjusted by adjusting the bias. This is because the frequency response depends more on the bias current than with an open-reel deck. 2) Perform the adjustment with normal tape and confirm that the values are within the range for metal tape.

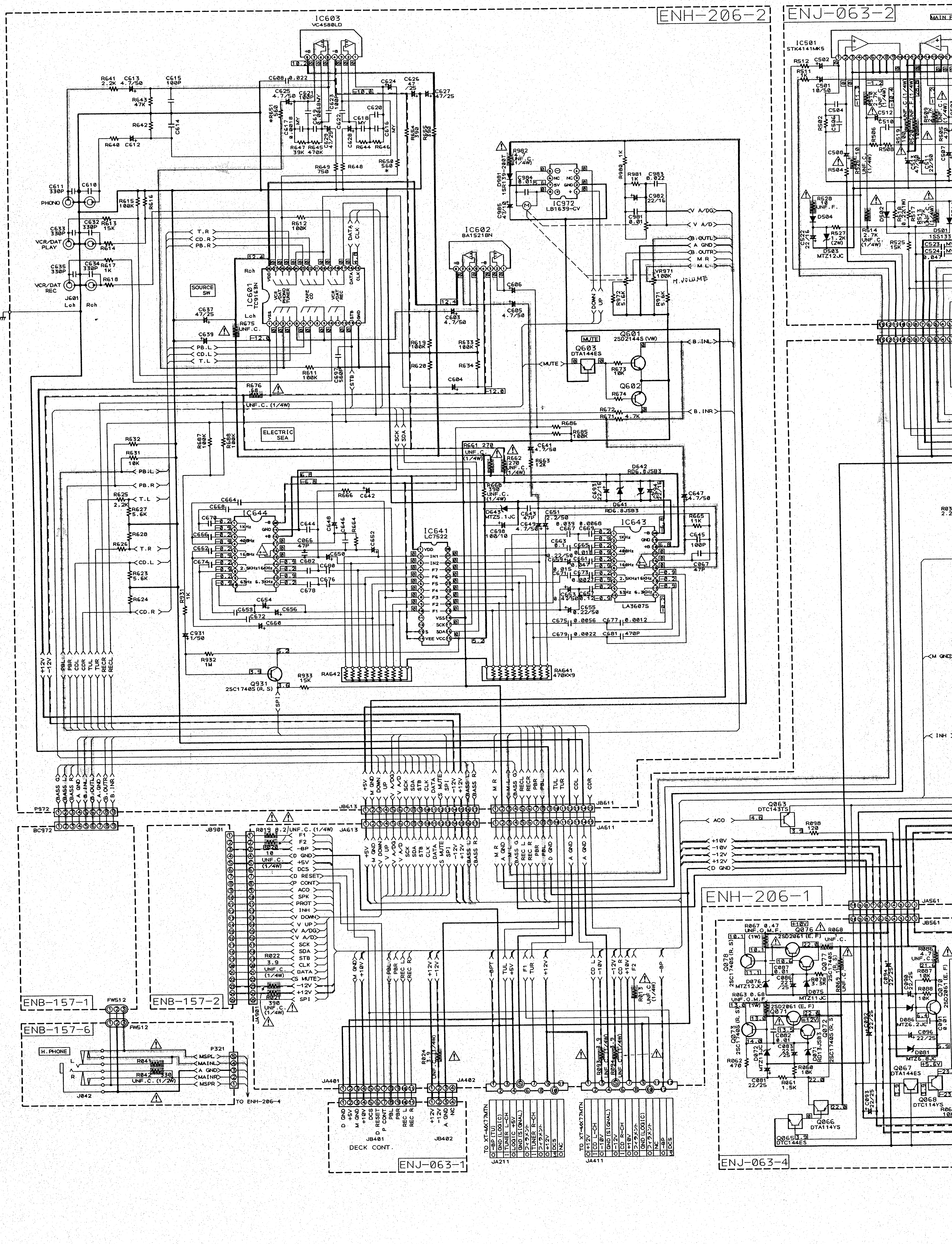
Note : After completing the recording level adjustment in item 3, check the recording and play back frequencies with the NR switch on. Fine adjust again if the value is 0±5 dB or more at 1 kHz and 12.5 kHz.

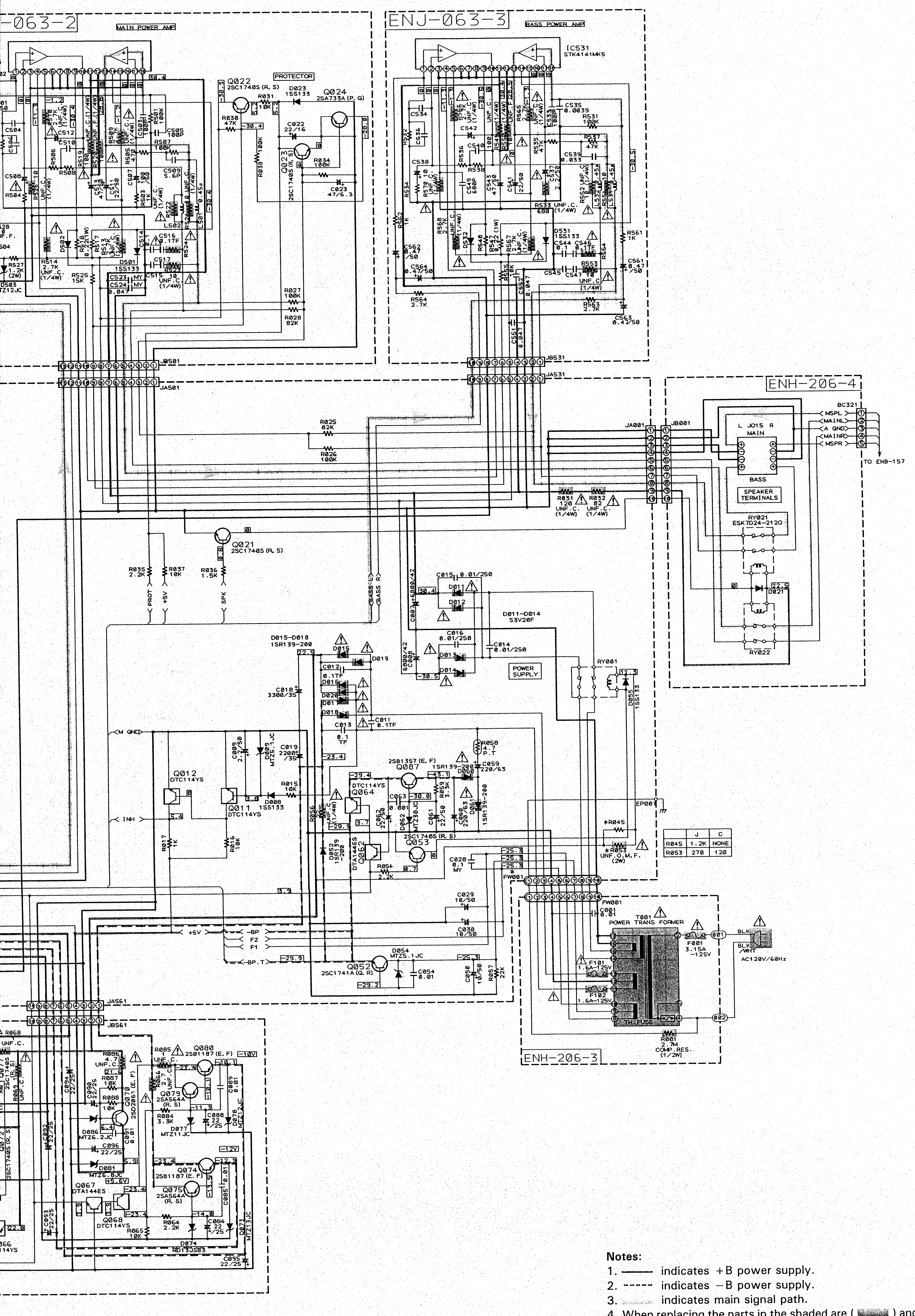
	Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
* 4	Recording Level	1) Input a 1 kHz (300mV) to VCR/DAT terminals and record on the left and right channels . 2) Connect an electronic voltmeter between W513 and W514 of DOLBY TP for left, or W515 and W514 for right. And then, adjust the semi;fixed resistors when playing back.	(L) VR311 (R) VR312	400mV	Adjust with normal tape and make sure that the left / right level difference is 1.0dB or less
* 5	Recording/ playback distortion	1) Input a 1 kHz (300mV) to VCR / DAT terminals and record it. 2) Play it back and check the speaker output with a distortion meter to make sure it is the rated value.		3% or less	Perform after the bias current and recording level adjustments.
6	Recording/ playback S/N ratio	1) Input a 1 kHz (300mV) to VCR / DAT terminals and record it. While recording, remove the input and record without a signal. 2) Play back and use an electronic voltmeter to compare the 0 dB recording output and the out-put of the recording without a signal to make sure this is the rated value.		45 dB or more	
7	Erase ratio check	1) Input a 400 Hz (950mV) to VIDEO / AUX terminals and record it using TMT-7040. 2) Rewind and erase part of the recorded section. 3) Compare the outputs of the recorded and erased sections using an electronic voltmeter.		55 dB or more	Connect a 400 Hz band-pass filter between the deck and electronic Voltmeter .  400Hz input Deck record / erase Band-pass filter Electronic voltmeter
8	Auto-stop check	When playing back and recording, make sure to operate AUTO STOP.			


VR482 (HIGH)
VR481 (NORMAL)
TAPE SPEED
Mechanism controller PCB (ENB-158-3)
REC bias freq. ADJ.
L331
Bias ADJ.
VR331 (L)
VR332 (R)
Beat cut switch
Front
REC LEVEL ADJ.
VR311 (L)
VR312 (R)
BIAS T.P.
L E R
W428
W429
W430
PB Freq. response
A-L VR455
B-L VR457
PB Level
A-L VR451
B-L VR453
Rear
ENJ-063-1
W513
W514
W515
L E R
DOLBY T.P.
A-R VR452
B-R VR454
PB level
A-R VR456
B-R VR458
PB Freq. response

Schematic Diagram

- **Source Selector, Power Supply & Power Amplifier**

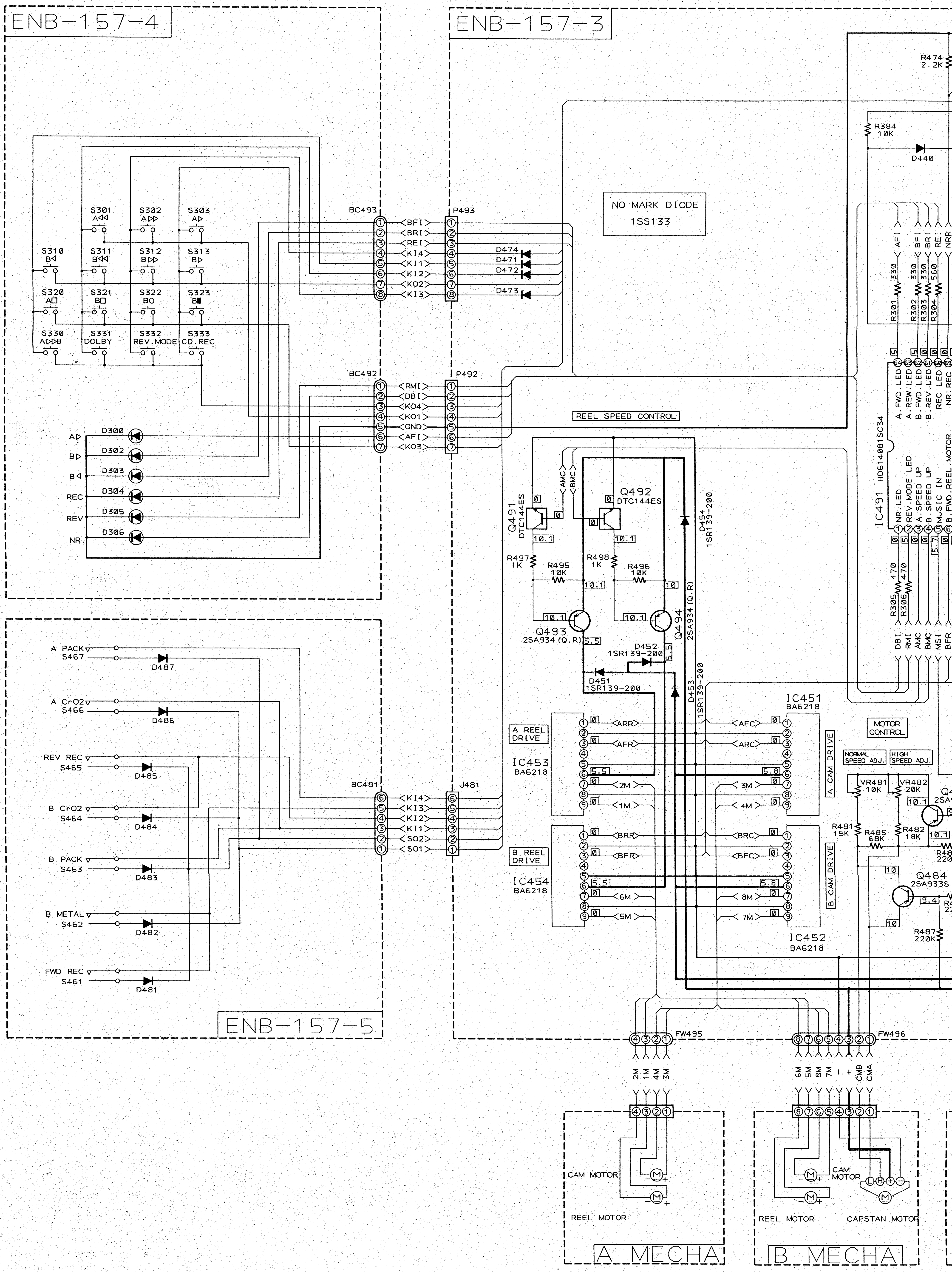

ENH-206-2
ENJ-063-2
IC603 VC4580LD
IC501 STK4141MK5
IC601 TC9163N
IC602 BA15218N
IC972 LB1639-CV
IC641 LC7522
IC643 LA3607S
SOURCE SW
ELECTRIC SEA
MUTE
Q601 2SD2144S (VW)
Q602
Q603 DTA144ES
Q931 2SC1740S (R, S)
PHONO
VCR/DAT PLAY
VCR/DAT REC
J601
Lch
Rch
M.VOLUME
P972
BC972
JB901
JB613
JA613
JB611
JA611
JA981
ENB-157-1
ENB-157-2
ENB-157-6
FW512
H.PHONE
P321
J042
TO ENH-206-4
JA401
JB401
JA402
JB402
DECK CONT.
ENJ-063-1
TO XT-MX77MTN
JA211
JA411
ENH-206-1
JAS61
JBS61
Q063 DTC143TS
ENJ-063-4
Q065 DTC144ES
Q066 DTA114YS
Q067 DTA144ES
Q068 DTC114YS
Q070 2SD2061 (E, F)
Q071 2SD2061 (E, F)
Q072 2SC1740S (R, S)
Q073 2SC1740S (R, S)
Q076 2SD2061 (E, F)
Q077 2SC1740S (R, S)
Q078 2SC1740S (R, S)
MAIN

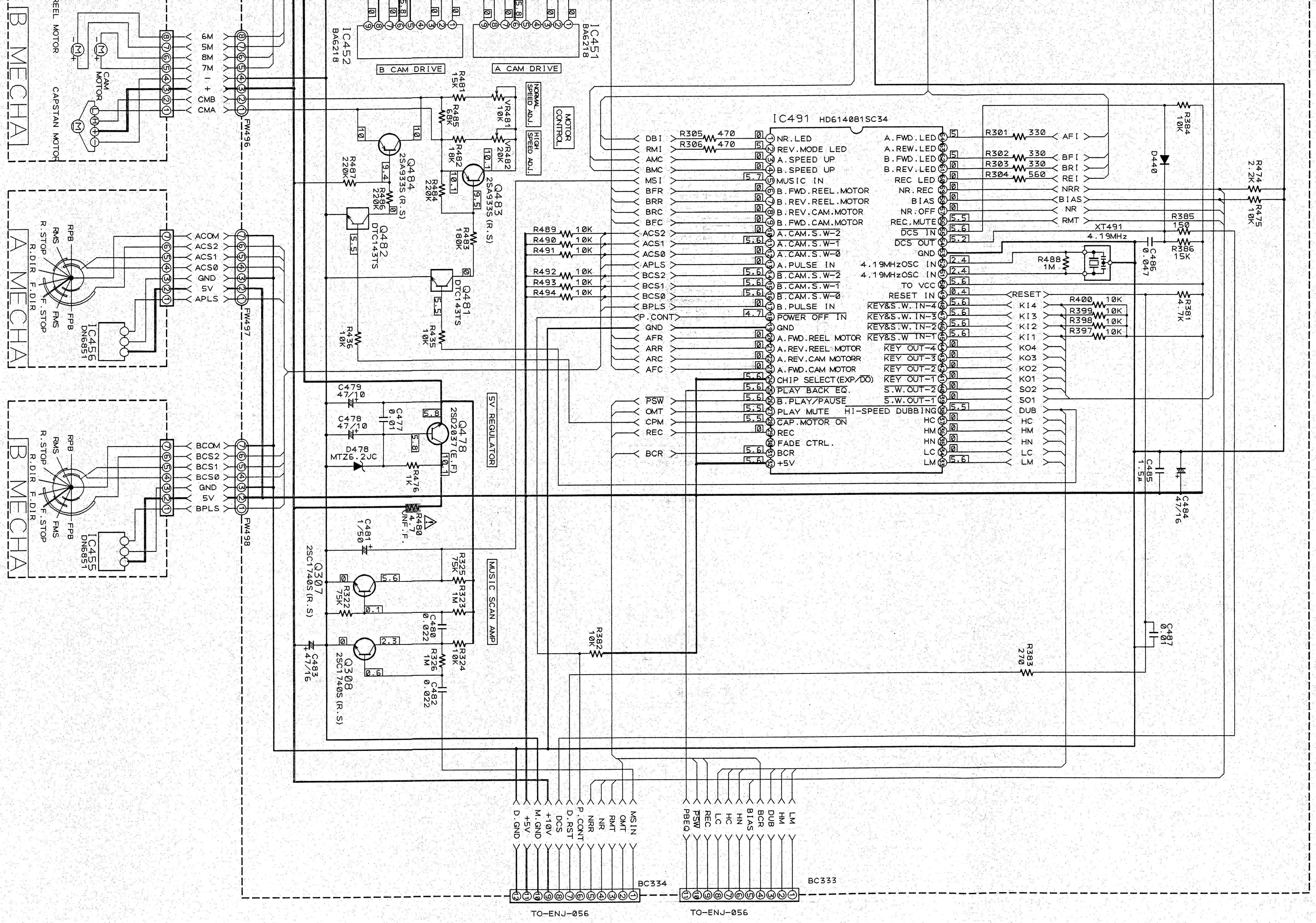

ENJ-063-2
MAIN POWER AMP
PROTECTOR
ENJ-063-3
BASS POWER AMP
IC531 STK4141MK5
ENH-206-4
BC321
MSPL
MAINL
A GND
MAINR
MSPR
TO ENB-157
J015 MAIN L R
BASS
SPEAKER TERMINALS
RY021 ESK7D24-2120
RY022
D021
JA001
JB001
JB501
JA501
JB531
JA531
Q021 2SC1740S (R, S)
Q022 2SC1740S (R, S)
Q023 2SC1740S (R, S)
Q024 2SA733A (P, Q)
D023 1SS133
PROT
+5V
SPK
BASS-L
BASS R
M GND
INH
POWER SUPPLY
D011-D014 S3V20F
D015-D018 1SR139-200
RY001
D055 1SS133
EP001
Q012 DTC114YS
Q011 DTC114YS
D008 1SS133
D009 MTZ5.1JC
Q087 2SB1357 (E, F)
Q064 DTC114YS
Q062 DTA144ES
Q053 2SC1740S (R, S)
Q052 2SC1741A (Q, R)
D054 MTZ5.1JC
D052 1SR139-200
FW001
ENH-206-3
T001 POWER TRANS FORMER
F001 3.15A -125V
F101 1.6A-125V
F102 1.6A-125V
TH. FUSE
R001 2.7M COMP. RES. (1/2W)
BLK
BLK/WHT
AC120V/60Hz
JAS61
JBS61
Q080 2SB1187 (E, F)
Q079 2SA564A (R, S)
Q070 2SD2061 (E, F)
Q074 2SB1187 (E, F)
Q075 2SA564A (R, S)
Q067 DTA144ES
Q068 DTC114YS
D074 RD13JSB3
D073 MTZ13JC
D077 MTZ11JC
D078 MTZ12JC
D081 MTZ6.8JC
D086 MTZ6.2JC
+5V
BP
F2
F1
BP.T

	J	C
R045	1.2K	NONE
R053	270	120

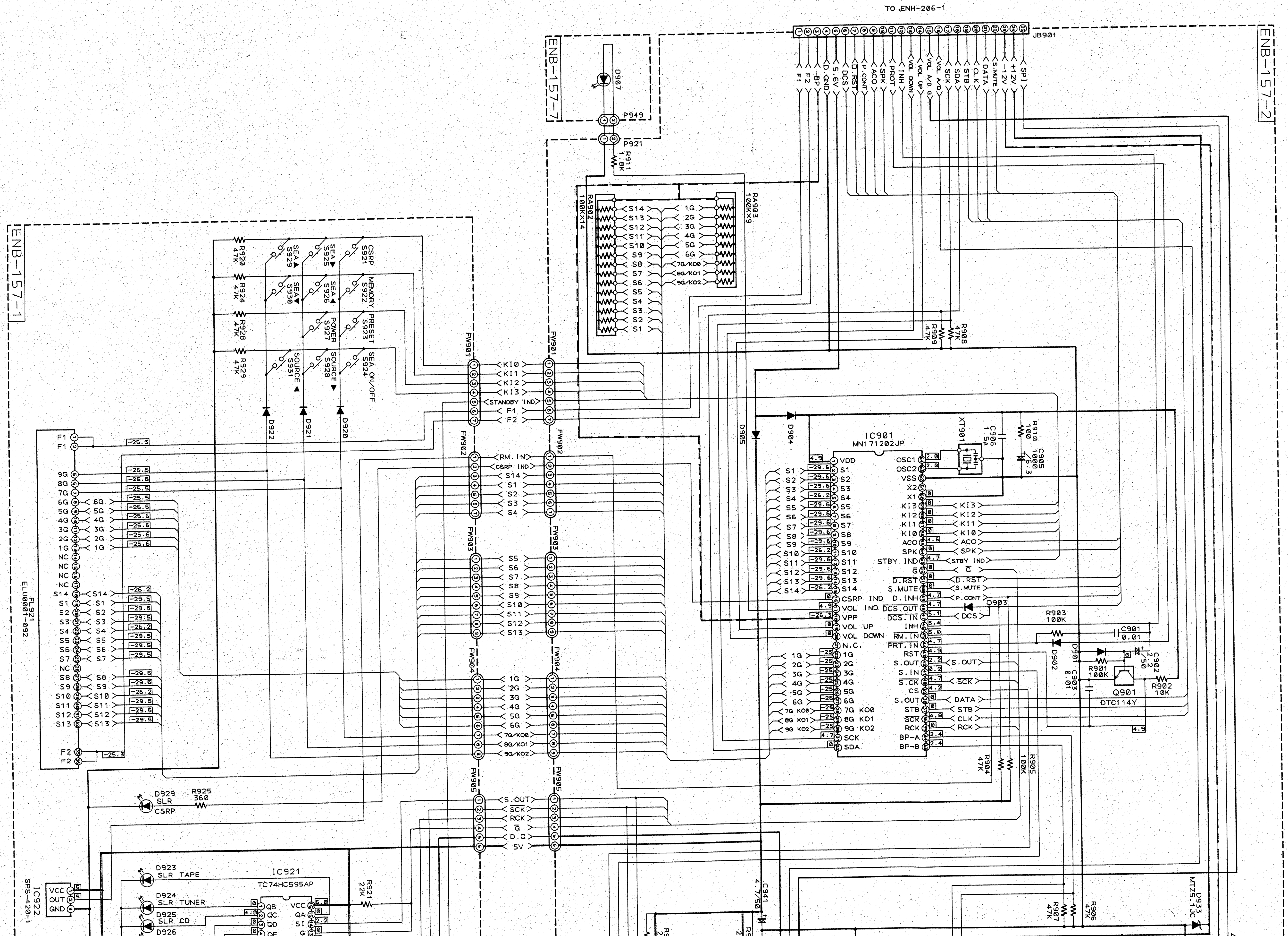
Notes:
1. ——— indicates +B power supply.
2. - - - - - indicates −B power supply.
3. ▨ indicates main signal path.
4. When replacing the parts in the shaded are (▨) and those marked with ⚠ , be sure to use the designated parts to ensure safety.
5. The design and contents are subject to change without notice.

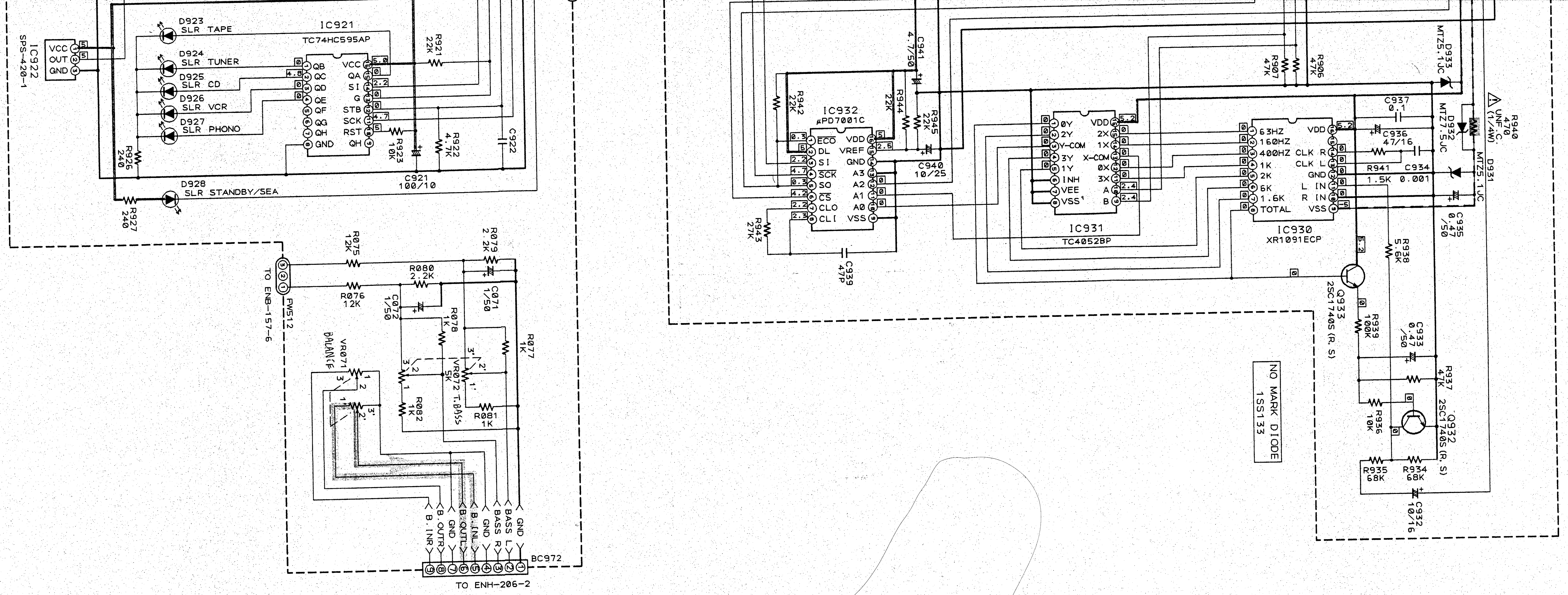
■ **Cassette Control**


ENB-157-4
S301 A◁◁
S302 A▷▷
S303 A▷
S310 B◁
S311 B◁◁
S312 B▷▷
S313 B▷
S320 A□
S321 B□
S322 BO
S323 B■
S330 A▷▷B
S331 DOLBY
S332 REV.MODE
S333 CD.REC
A▷ D300
B▷ D302
B◁ D303
REC D304
REV D305
NR. D306
BC493
BC492
ENB-157-5
A PACK S467 D487
A CrO2 S466 D486
REV REC S465 D485
B CrO2 S464 D484
B PACK S463 D483
B METAL S462 D482
FWD REC S461 D481
BC481
BFI BRI REI KI4 KI1 KI2 KO2 KI3
RMI DBI KO4 KO1 GND AFI KO3
KI4 KI3 KI2 KI1 SO2 SO1
ENB-157-3
P493
P492
J481
D474 D471 D472 D473
NO MARK DIODE 1SS133
REEL SPEED CONTROL
Q491 DTC144ES
Q492 DTC144ES
Q493 2SA934 (Q.R)
Q494 2SA934 (Q.R)
R497 1K
R495 10K
R498 1K
R496 10K
D451 1SR139-200
D452 1SR139-200
D453 1SR139-200
D454 1SR139-200
AMC BMC
A REEL DRIVE
IC453 BA6218
B REEL DRIVE
IC454 BA6218
IC451 BA6218
A CAM DRIVE
IC452 BA6218
B CAM DRIVE
ARR AFR 2M 1M
BRR BFR 6M 5M
AFC ARC 3M 4M
BRC BFC 8M 7M
10.1 5.5 5.8 9.4
MOTOR CONTROL
NORMAL SPEED ADJ.
HIGH SPEED ADJ.
VR481 10K
VR482 20K
R481 15K
R485 68K
R482 18K
R487 220K
Q484 2SA933S
R474 2.2K
R384 10K
D440
IC491 HD614081SC34
NR.LED
REV.MODE LED
A.SPEED UP
B.SPEED UP
MUSIC IN
B.FWD.REEL.MOTOR
A.FWD.LED
A.REW.LED
B.FWD.LED
B.REV.LED
REC LED
NR.REC
R305 470
R306 470
R301 330
R302 330
R303 330
R304 560
DBI RMI AMC BMC MSI BFR
AFI BFI BRI REI NRR
FW495
2M 1M 4M 3M
FW496
6M 5M 8M 7M – + CMB CMA
CAM MOTOR
REEL MOTOR
A MECHA
REEL MOTOR
CAM MOTOR
CAPSTAN MOTOR
B MECHA


B MECHA
REEL MOTOR
CAM MOTOR
CAPSTAN MOTOR
6M
5M
8M
7M
+
CMB
CMA
FW496
A MECHA
RPB
RMS
R.STOP
R.DIR
F.DIR
F.STOP
FMS
FPB
IC456
DN6851
ACOM
ACS2
ACS1
ACS0
GND
5V
APLS
FW497
B MECHA
IC455
DN6851
BCOM
BCS2
BCS1
BCS0
GND
5V
BPLS
FW498
IC452
BA6218
B CAM DRIVE
IC451
BA6218
A CAM DRIVE
R481 15K
R485 68K
VR481 10K
NORMAL SPEED ADJ.
VR482 20K
HIGH SPEED ADJ.
MOTOR CONTROL
R482 18K
R487 220K
Q484 2SA933S(R.S)
R486 220K
R484 220K
Q483 2SA933S(R.S)
Q482 DTC143TS
R483 180K
Q481 DTC143TS
R436 10K
R435 10K
C479 47/10
C478 47/10
C477 0.01
Q478 2SD2037(E.F)
5V REGULATOR
D478 MTZ6.2JC
R476 1K
R480 4.7 UNF.F.
C481 1/50
Q307 2SC1740S(R.S)
R325 75K
R322 75K
R323 1M
MUSIC SCAN AMP
C480 0.022
Q308 2SC1740S(R.S)
C483 47/16
R326 1M
R324 10K
C482 0.022
IC491 HD614081SC34
R305 470
R306 470
DBI
RMI
AMC
BMC
MSI
BFR
BRR
BRC
BFC
R489 10K
R490 10K
R491 10K
ACS2
ACS1
ACS0
APLS
R492 10K
R493 10K
R494 10K
BCS2
BCS1
BCS0
BPLS
P.CONT
GND
AFR
ARR
ARC
AFC
PSW
OMT
CPM
REC
BCR
NR.LED
REV.MODE LED
A.SPEED UP
B.SPEED UP
MUSIC IN
B.FWD.REEL.MOTOR
B.REV.REEL.MOTOR
B.REV.CAM.MOTOR
B.FWD.CAM.MOTOR
A.CAM.S.W-2
A.CAM.S.W-1
A.CAM.S.W-0
A.PULSE IN
B.CAM.S.W-2
B.CAM.S.W-1
B.CAM.S.W-0
B.PULSE IN
POWER OFF IN
GND
A.FWD.REEL MOTOR
A.REV.REEL MOTOR
A.REV.CAM MOTORR
A.FWD.CAM MOTOR
CHIP SELECT(EXP/DO)
PLAY BACK EQ.
B.PLAY/PAUSE
PLAY MUTE
CAP.MOTOR ON
REC
FADE CTRL.
BCR
+5V
A.FWD.LED
A.REW.LED
B.FWD.LED
B.REV.LED
REC LED
NR.REC
BIAS
NR.OFF
REC.MUTE
DCS IN
DCS OUT
GND
4.19MHzOSC IN
4.19MHzOSC IN
TO VCC
RESET IN
KEY&S.W.IN-4
KEY&S.W.IN-3
KEY&S.W.IN-2
KEY&S.W IN-1
KEY OUT-4
KEY OUT-3
KEY OUT-2
KEY OUT-1
S.W.OUT-2
S.W.OUT-1
HI-SPEED DUBBING
HC
HM
HN
LC
LM
R301 330
R302 330
R303 330
R304 560
AFI
BFI
BRI
REI
NRR
BIAS
NR
RMT
XT491 4.19MHz
R488 1M
C486 0.047
R385 150
R386 15K
RESET
R400 10K
R399 10K
R398 10K
R397 10K
KI4
KI3
KI2
KI1
KO4
KO3
KO2
KO1
SO2
SO1
DUB
HC
HM
HN
LC
LM
R384 10K
D440
R474 2.2K
R475 10K
R381 4.7K
C485 1.5μ
C484 47/16
C487 0.01
R382 10K
R383 270
D.GND
+5V
M.GND
+10V
DCS
D.RST
P.CONT
NRR
NR
RMT
OMT
MSIN
BC334
TO-ENJ-056
PBEQ
PSW
REC
LC
HC
HN
BIAS
BCR
DUB
HM
LM
BC333
TO-ENJ-056

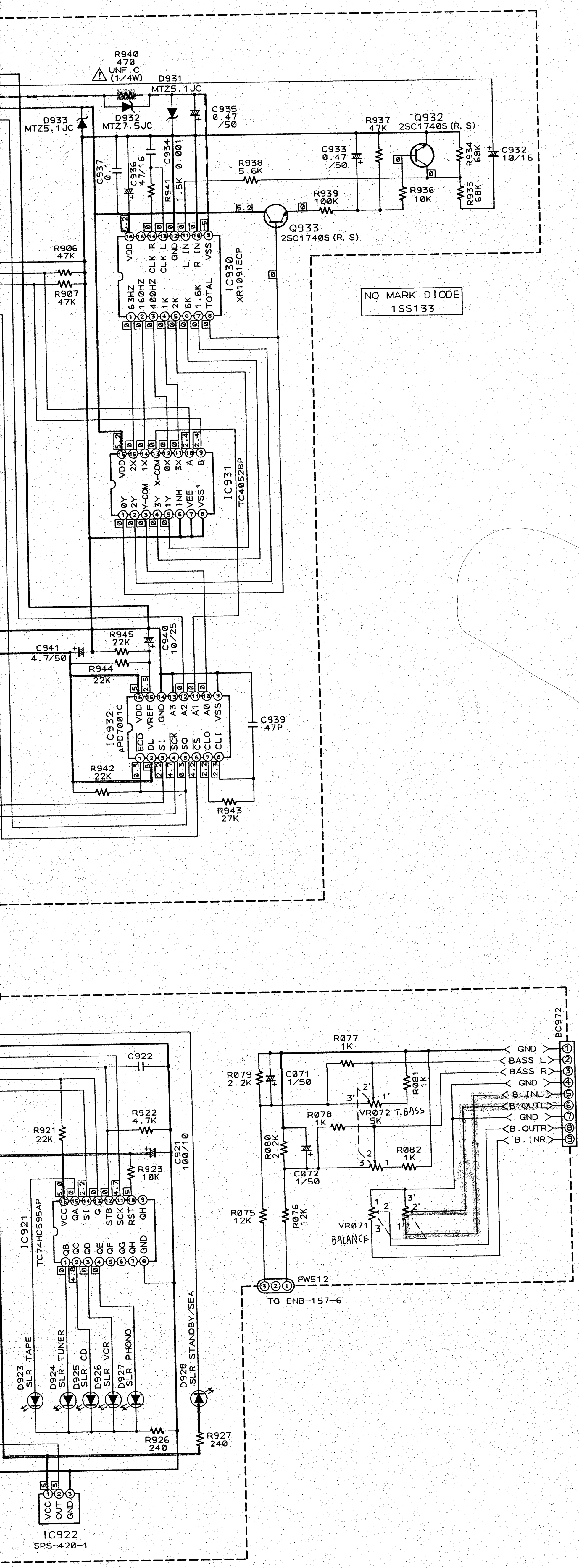
■ FL Display & System Control


TO ENH-206-1
JB901
ENB-157-2
ENB-157-7
ENB-157-1
F1
F2
-BP
D.GND
5.6V
DCS
D.RST
P.CONT
ACO
SPK
PROT
INH
VOL DOWN
VOL UP
VOL A/D G
VOL A/D
SCK
SDA
STB
CLK
DATA
S.MUTE
-12V
+12V
SP1
D907
P949
P921
R911 1.8K
RA902 100K×14
RA903 100K×9
S14
S13
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
S2
S1
1G
2G
3G
4G
5G
6G
7G/KO0
8G/KO1
9G/KO2
R908 47K
R909 47K
R920 47K
R924 47K
R928 47K
R929 47K
CSRP S921
SEA▼ S925
SEA▲ S929
MEMORY S922
SEA▲ S926
SEA▼ S930
PRESET S923
POWER S927
SEA ON/OFF S924
SOURCE▼ S928
SOURCE▲ S931
D920
D921
D922
FW901
FW902
FW903
FW904
FW905
KI0
KI1
KI2
KI3
STANDBY IND
RM.IN
CSRP IND
S.OUT
SCK
RCK
IG
D.G
5V
D905
D904
IC901
MN171202JP
VDD
OSC1
OSC2
VSS
X2
X1
KI3
KI2
KI1
KI0
ACO
SPK
STBY IND
D.RST
S.MUTE
CSRP IND
D.INH
VOL IND
DCS.OUT
VPP
DCS.IN
VOL UP
INH
VOL DOWN
RM.IN
N.C.
PRT.IN
RST
S.OUT
S.IN
S.CK
CS
STB
RCK
BP-A
BP-B
SCK
SDA
XT901
C906 1.5µ
R910 100
C905 100 6.3
D903
R903 100K
C901 0.01
D901
D902
C903 0.01
R901 100K
C902 2.2 50
Q901 DTC114Y
R902 10K
R904 47K
R905 100K
FL921
ELU0001-092
F1
F2
9G
8G
7G
NC
-25.3
-25.5
-25.6
-26.2
-29.5
-29.6
D929 SLR CSRP
R925 360
IC922
SPS-420-1
VCC
OUT
GND
D923 SLR TAPE
D924 SLR TUNER
D925 SLR CD
D926
IC921
TC74HC595AP
R921 22K
C941 4.7/50
R906 47K
R907 47K
D933 MTZ5.1JC


IC922
SPS-420-1
VCC
OUT
GND
D923 SLR TAPE
D924 SLR TUNER
D925 SLR CD
D926 SLR VCR
D927 SLR PHONO
D928 SLR STANDBY/SEA
IC921
TC74HC595AP
R921 22K
R922 4.7K
R923 10K
C921 100/10
C922
R926 240
R927 240
TO ENB-157-6
FW512
R075 12K
R076 12K
R079 2.2K
R080 2.2K
C071 1/50
C072 1/50
R077 1K
R078 1K
R081 1K
R082 1K
VR071 BALANCE
VR072 T.BASS 5K
B.INR
B.OUTR
GND
B.OUTL
B.INL
GND
BASS R
BASS L
GND
BC972
TO ENH-206-2
IC932
μPD7001C
R942 22K
R943 27K
R944 22K
R945 22K
C941 4.7/50
C940 10/25
C939 47P
IC931
TC4052BP
IC930
XR1091ECP
63HZ
160HZ
400HZ
1K
2K
6K
1.6K
TOTAL
R906 47K
R907 47K
D933 MTZ5.1JC
D932 MTZ7.5JC
D931 MTZ5.1JC
R940 470 UNFC (1/4W)
C937 0.1
C936 47/16
R941 1.5K
C934 0.001
C935 0.47 /50
R938 5.6K
Q933 2SC1740S (R, S)
R939 100K
C933 0.47 /50
R937 4.7K
Q932 2SC1740S (R, S)
R936 10K
R935 68K
R934 68K
C932 10/16
NO MARK DIODE 1SS133

Notes:

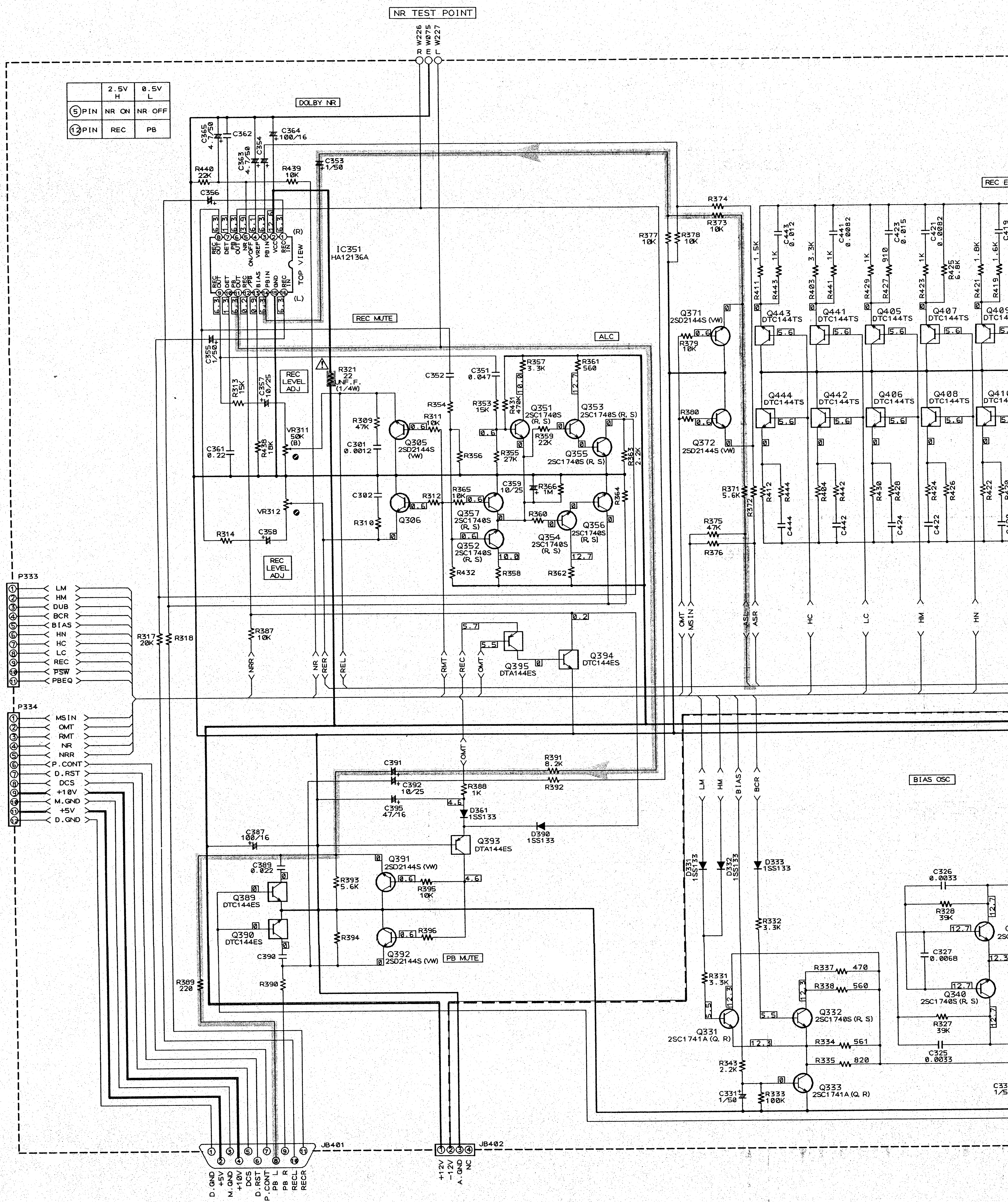
1. ——— indicates +B power supply.
2. ----- indicates –B power supply.
3. ▨ indicates main signal path.
4. When replacing the parts in the shaded are (▨) and those marked with ⚠, be sure to use the designated parts to ensure safety.
5. The design and contents are subject to change without notice.


R940 470 UNF.C. (1/4W)
D931 MTZ5.1JC
D932 MTZ7.5JC
D933 MTZ5.1JC
C935 0.47/50
R937 47K
Q932 2SC1740S (R, S)
C933 0.47/50
C932 10/16
R934 68K
R935 68K
R936 10K
R938 5.6K
R939 100K
C937 0.1
C936 47/16
R941 1.5K
C934 0.001
Q933 2SC1740S (R, S)
R906 47K
R907 47K
IC930 XR1091ECP
VDD CLK R CLK L GND L IN R IN VSS
63HZ 160HZ 400HZ 1K 2K 6K 1.6K TOTAL
NO MARK DIODE 1SS133
IC931 TC4052BP
VDD 2X 1X X-COM 0X 3X A B
0Y 2Y Y-COM 3Y 1Y INH VEE VSS
R945 22K
C940 10/25
C941 4.7/50
R944 22K
IC932 μPD7001C
ECO DL SI SCK SO CS CLO CLI
VDD VREF GND A3 A2 A1 A0 VSS
C939 47P
R942 22K
R943 27K
C922
R921 22K
R922 4.7K
R923 10K
C921 100/10
IC921 TC74HC595AP
VCC QA SI G STB SCK RST QH
QB QC QD QE QF QG QH GND
D923 SLR TAPE
D924 SLR TUNER
D925 SLR CD
D926 SLR VCR
D927 SLR PHONO
D928 SLR STANDBY/SEA
R926 240
R927 240
IC922 SPS-420-1
VCC OUT GND
R077 1K
R079 2.2K
C071 1/50
R081 1K
VR072 T.BASS 5K
R078 1K
R080 2.2K
C072 1/50
R082 1K
R075 12K
R076 12K
VR071 BALANCE
FW512
TO ENB-157-6
BC972
TO ENH-206-2
GND
BASS L
BASS R
GND
B.INL
B.OUTL
GND
B.OUTR
B.INR

Notes:

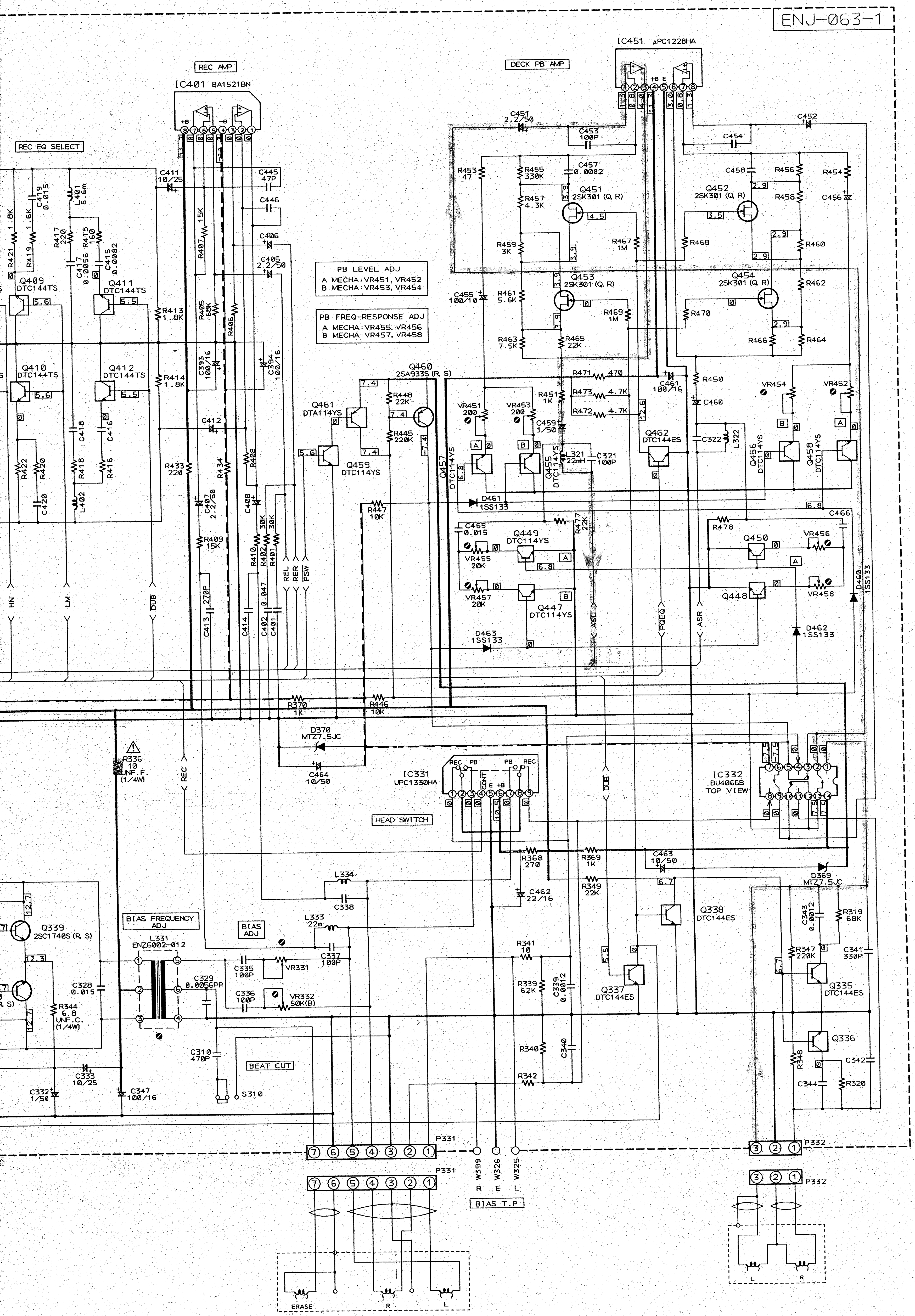
1. ——— indicates +B power supply.
2. ----- indicates −B power supply.
3. ▒ indicates main signal path.
4. When replacing the parts in the shaded are (▒) and those marked with ⚠ , be sure to use the designated parts to ensure safety.
5. The design and contents are subject to change without notice.

■ Cassette Amplifier


NR TEST POINT
R W226
E W075
L W227
2.5V H
0.5V L
⑤PIN NR ON NR OFF
⑫PIN REC PB
DOLBY NR
IC351
HA12136A
TOP VIEW
(R)
(L)
REC OUT
DET
PB OUT
NR ON/OFF
VREF
PBIN
VCC
REC IN
BIAS
GND
REC MUTE
ALC
REC LEVEL ADJ
VR311 50K (B)
VR312
R321 22 UNF.F. (1/4W)
Q305 2SD2144S (VW)
Q306
Q351 2SC1740S (R, S)
Q353 2SC1740S (R, S)
Q355 2SC1740S (R, S)
Q357 2SC1740S (R, S)
Q352 2SC1740S (R, S)
Q354 2SC1740S (R, S)
Q356 2SC1740S (R, S)
Q395 DTA144ES
Q394 DTC144ES
Q371 2SD2144S (VW)
Q372 2SD2144S (VW)
Q443 DTC144TS
Q441 DTC144TS
Q405 DTC144TS
Q407 DTC144TS
Q444 DTC144TS
Q442 DTC144TS
Q406 DTC144TS
Q408 DTC144TS
P333
LM
HM
DUB
BCR
BIAS
HN
HC
LC
REC
PSW
PBEQ
P334
MSIN
OMT
RMT
NR
NRR
P.CONT
D.RST
DCS
+10V
M.GND
+5V
D.GND
Q393 DTA144ES
Q391 2SD2144S (VW)
Q392 2SD2144S (VW)
Q389 DTC144ES
Q390 DTC144ES
PB MUTE
D361 1SS133
D390 1SS133
D331 1SS133
D332 1SS133
D333 1SS133
BIAS OSC
Q331 2SC1741A (Q, R)
Q332 2SC1740S (R, S)
Q333 2SC1741A (Q, R)
Q340 2SC1740S (R, S)
REC EQ
JB401
JB402
+12V
-12V
A.GND
NC
PB L
PB R
RECL
RECR
ASL
ASR

Notes:

1. ——— indicates +B power supply.
2. ----- indicates −B power supply.
3. ▨ indicates main signal path.
4. When replacing the parts in the shaded are (▨ marked with ⚠ , be sure to use the designated part safety.
5. The design and contents are subject to change with


ENJ-063-1
REC AMP
IC401 BA1521BN
REC EQ SELECT
DECK PB AMP
IC451 µPC1228HA
PB LEVEL ADJ
A MECHA:VR451, VR452
B MECHA:VR453, VR454
PB FREQ-RESPONSE ADJ
A MECHA:VR455, VR456
B MECHA:VR457, VR458
Q409 DTC144TS
Q410 DTC144TS
Q411 DTC144TS
Q412 DTC144TS
Q451 2SK301 (Q R)
Q452 2SK301 (Q R)
Q453 2SK301 (Q R)
Q454 2SK301 (Q R)
Q460 2SA933S (R, S)
Q461 DTA114YS
Q459 DTC114YS
Q457 DTC114YS
Q455 DTC114YS
Q462 DTC144ES
Q456 DTC114YS
Q458 DTC114YS
Q449 DTC114YS
Q447 DTC114YS
Q450
Q448
D461 1SS133
D463 1SS133
D462 1SS133
D460 1SS133
D370 MTZ7.5JC
D369 MTZ7.5JC
HN
LM
DUB
REL
RER
PSW
ASL
PQEQ
ASR
REC
DUB
IC331 UPC1330HA
HEAD SWITCH
IC332 BU4066B TOP VIEW
R336 10 UNF.F. (1/4W)
Q339 2SC1740S (R, S)
BIAS FREQUENCY ADJ
L331 ENZ6002-012
BIAS ADJ
BEAT CUT
S310
R344 6.8 UNF.C. (1/4W)
C328 0.015
C329 0.0056PP
C310 470P
C335 100P
C336 100P
VR331
VR332 50K(B)
C337 100P
L333 22m
L334
C338
R368 270
R369 1K
R349 22K
C462 22/16
C463 10/50
Q338 DTC144ES
Q337 DTC144ES
Q335 DTC144ES
Q336
R341 10
R339 62K
C339 0.0012
R340
C340
R342
C343 0.0012
R319 68K
R347 220K
C341 330P
R348
C342
C344
R320
C332 1/50
C333 10/25
C347 100/16
C411 10/25
C445 47P
C446
C406
C405 2.2/50
C419 0.015
L401 5.6m
R421 1.8K
R419 1.6K
R417 220
R415 160
C417 0.0056
C415 0.0082
R407 15K
R405 68K
R406
R413 1.8K
R414 1.8K
C393 100/16
C394 100/16
C412
R433 220
R434
R408
C407 2.2/50
C408
R409 15K
R410 30K
R402 30K
R401 30K
C413 270P
C414
C402 0.047
C401
R422
R420
R418
R416
C418
C416
C420
L402
R370 1K
R446 10K
C464 10/50
R447 10K
R448 22K
R445 220K
C451 2.2/50
C453 100P
C457 0.0082
R453 47
R455 330K
R457 4.3K
R459 3K
R467 1M
C455 100/10
R461 5.6K
R469 1M
R463 7.5K
R465 22K
R471 470
R473 4.7K
R472 4.7K
R451 1K
VR451 200
VR453 200
C459 1/50
L321 22mH
C321 100P
C461 100/16
R450
C460
C322
L322
C452
C454
C458
R456
R454
R458
C456
R468
R460
R462
R470
R466
R464
VR454
VR452
C465 0.015
VR455 20K
VR457 20K
R477 22K
R478
VR456
VR458
C466
P331
P332
W399
W326
W325
R
E
L
BIAS T.P
ERASE

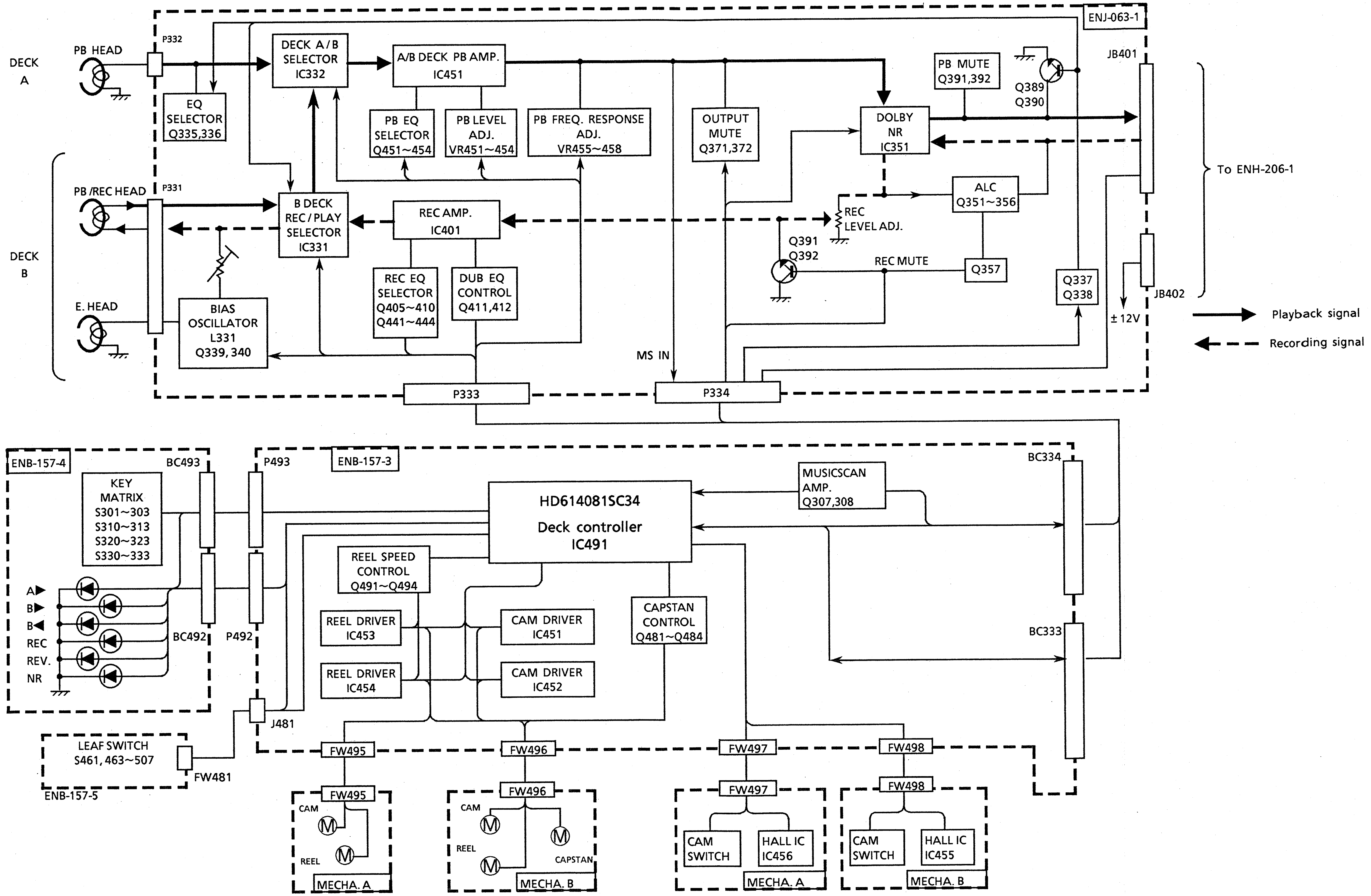
(▇) and those
ated parts to ensure

nge without notice.

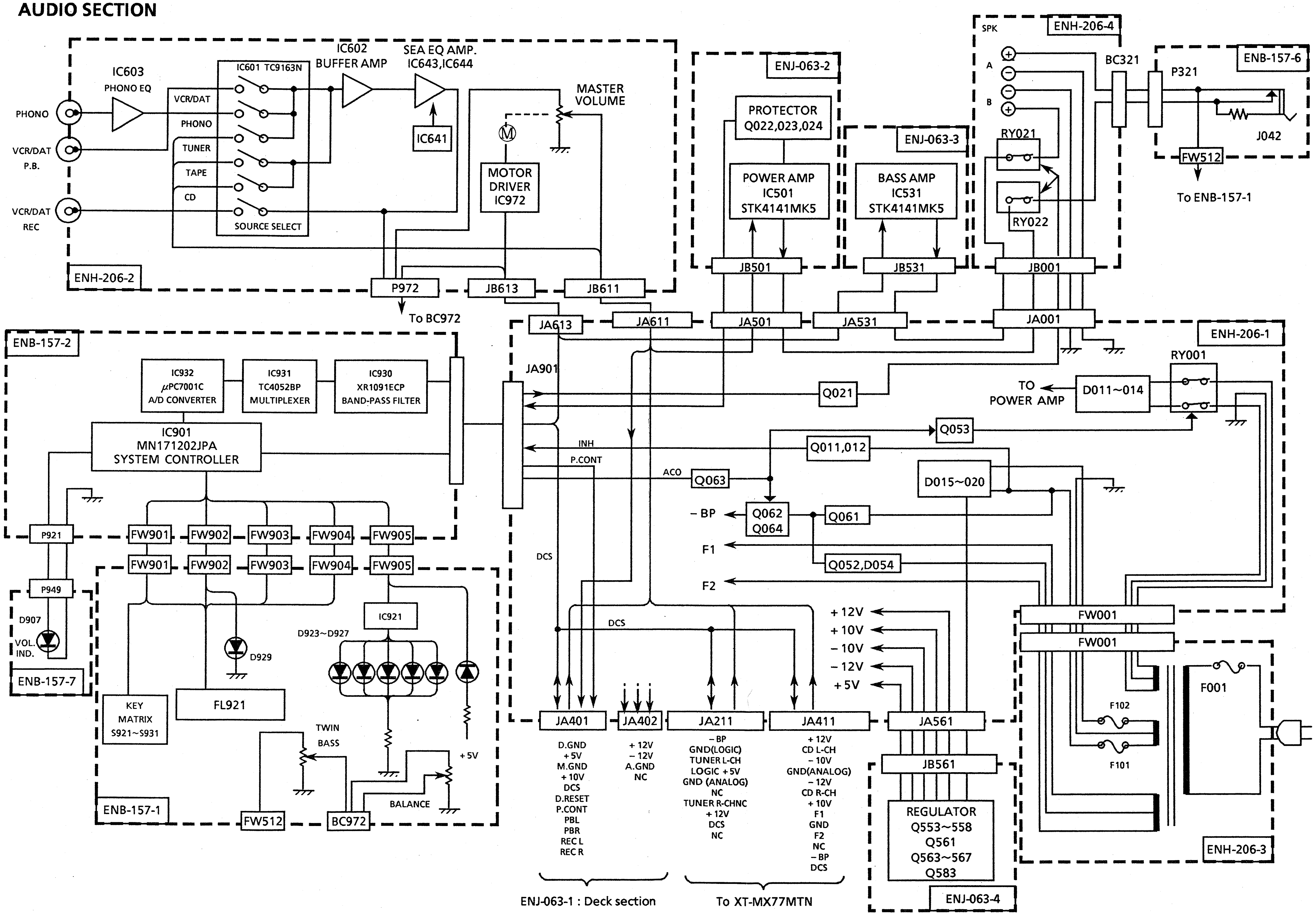
lo. 20335)

Block Diagram

Cassette Deck Section

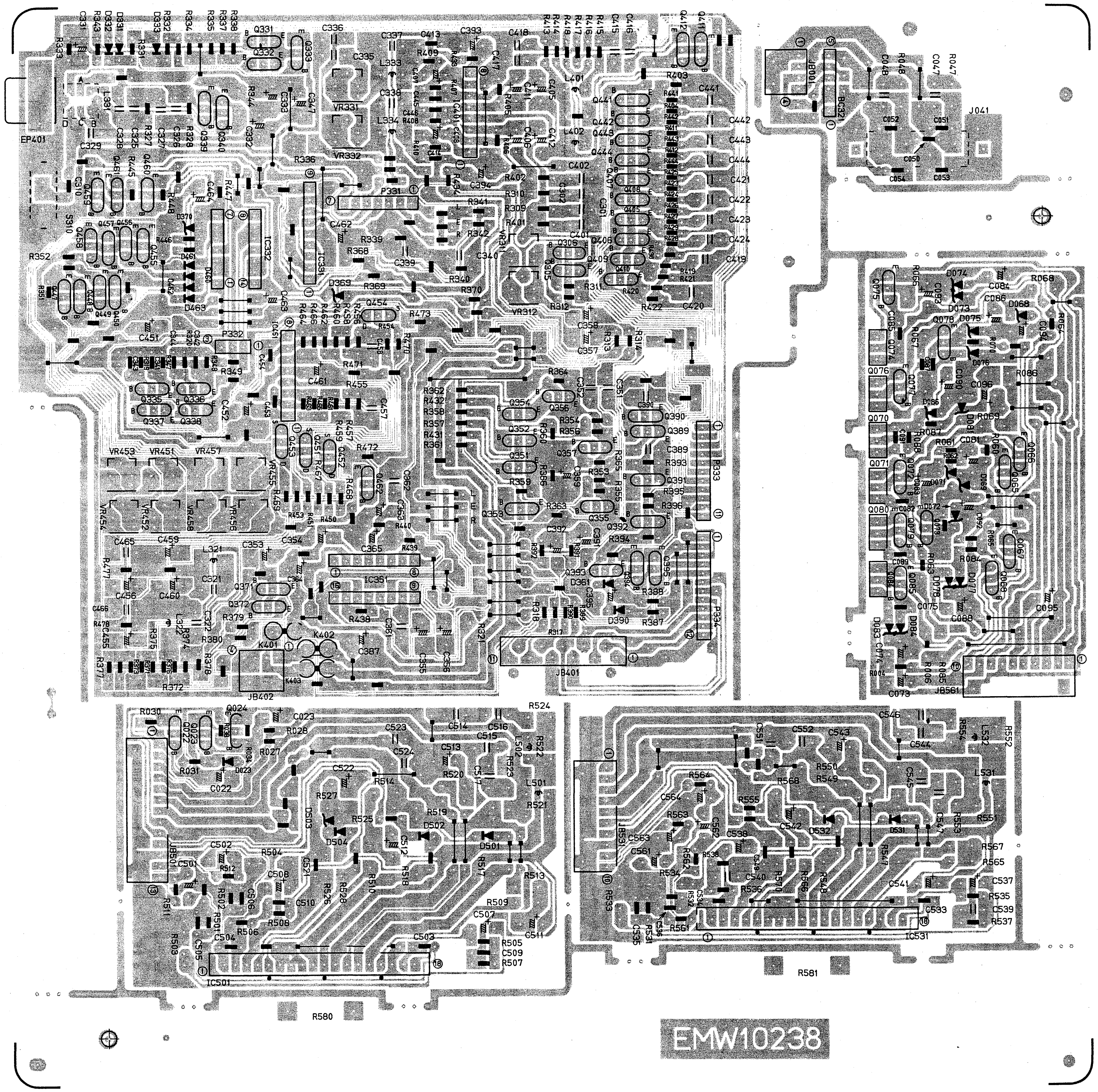

ENJ-063-1
DECK A
PB HEAD
P332
EQ SELECTOR Q335,336
DECK A/B SELECTOR IC332
A/B DECK PB AMP. IC451
PB EQ SELECTOR Q451~454
PB LEVEL ADJ. VR451~454
PB FREQ. RESPONSE ADJ. VR455~458
OUTPUT MUTE Q371,372
PB MUTE Q391,392
Q389 Q390
DOLBY NR IC351
JB401
ALC Q351~356
REC LEVEL ADJ.
Q391 Q392
REC MUTE
Q357
Q337 Q338
JB402
±12V
To ENH-206-1
DECK B
PB/REC HEAD
P331
B DECK REC/PLAY SELECTOR IC331
REC AMP. IC401
REC EQ SELECTOR Q405~410 Q441~444
DUB EQ CONTROL Q411,412
E. HEAD
BIAS OSCILLATOR L331 Q339, 340
MS IN
P333
P334
Playback signal
Recording signal
ENB-157-4
BC493
KEY MATRIX S301~303 S310~313 S320~323 S330~333
A▶
B▶
B◀
REC
REV.
NR
BC492
P493
P492
ENB-157-3
HD614081SC34 Deck controller IC491
MUSICSCAN AMP. Q307,308
BC334
BC333
REEL SPEED CONTROL Q491~Q494
REEL DRIVER IC453
REEL DRIVER IC454
CAM DRIVER IC451
CAM DRIVER IC452
CAPSTAN CONTROL Q481~Q484
J481
LEAF SWITCH S461, 463~507
FW481
ENB-157-5
FW495
FW496
FW497
FW498
CAM
REEL
CAPSTAN
MECHA. A
MECHA. B
CAM SWITCH
HALL IC IC456
HALL IC IC455

AUDIO SECTION

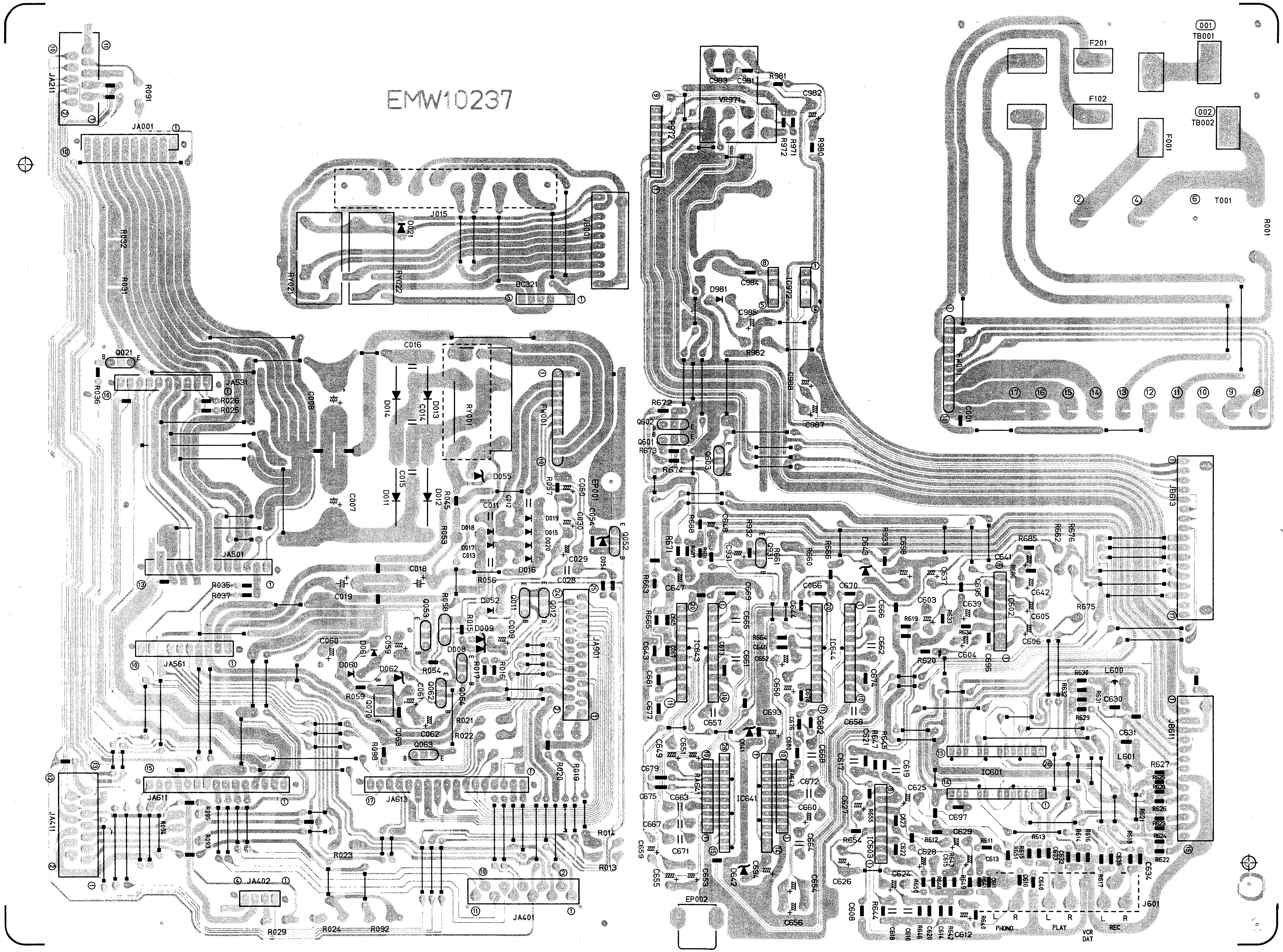

PHONO
VCR/DAT P.B.
VCR/DAT REC
IC603
PHONO EQ
VCR/DAT
PHONO
TUNER
TAPE
CD
IC601 TC9163N
SOURCE SELECT
IC602
BUFFER AMP
SEA EQ AMP.
IC643,IC644
IC641
MASTER VOLUME
M
MOTOR DRIVER IC972
ENH-206-2
P972
JB613
JB611
To BC972
ENJ-063-2
PROTECTOR
Q022,023,024
POWER AMP
IC501
STK4141MK5
JB501
ENJ-063-3
BASS AMP
IC531
STK4141MK5
JB531
SPK
A
B
ENH-206-4
RY021
RY022
BC321
JB001
ENB-157-6
P321
J042
FW512
To ENB-157-1
JA613
JA611
JA501
JA531
JA001
ENH-206-1
ENB-157-2
IC932
μPC7001C
A/D CONVERTER
IC931
TC4052BP
MULTIPLEXER
IC930
XR1091ECP
BAND-PASS FILTER
IC901
MN171202JPA
SYSTEM CONTROLLER
JA901
Q021
TO POWER AMP
D011~014
RY001
Q053
INH
Q011,012
P.CONT
ACO
Q063
D015~020
– BP
Q062
Q064
Q061
F1
Q052,D054
F2
P921
FW901
FW902
FW903
FW904
FW905
P949
D907
VOL. IND.
ENB-157-7
IC921
D923~D927
D929
KEY MATRIX
S921~S931
FL921
TWIN BASS
+5V
BALANCE
ENB-157-1
FW512
BC972
DCS
DCS
+12V
+10V
– 10V
– 12V
+5V
FW001
FW001
F001
F102
F101
ENH-206-3
JA401
JA402
JA211
JA411
JA561
JB561
REGULATOR
Q553~558
Q561
Q563~567
Q583
ENJ-063-4
D.GND
+5V
M.GND
+10V
DCS
D.RESET
P.CONT
PBL
PBR
REC L
REC R
+12V
– 12V
A.GND
NC
– BP
GND(LOGIC)
TUNER L-CH
LOGIC +5V
GND (ANALOG)
NC
TUNER R-CHNC
+12V
DCS
NC
+12V
CD L-CH
– 10V
GND(ANALOG)
– 12V
CD R-CH
+10V
F1
GND
F2
NC
– BP
DCS
ENJ-063-1 : Deck section
To XT-MX77MTN

Printed Circuit Boards

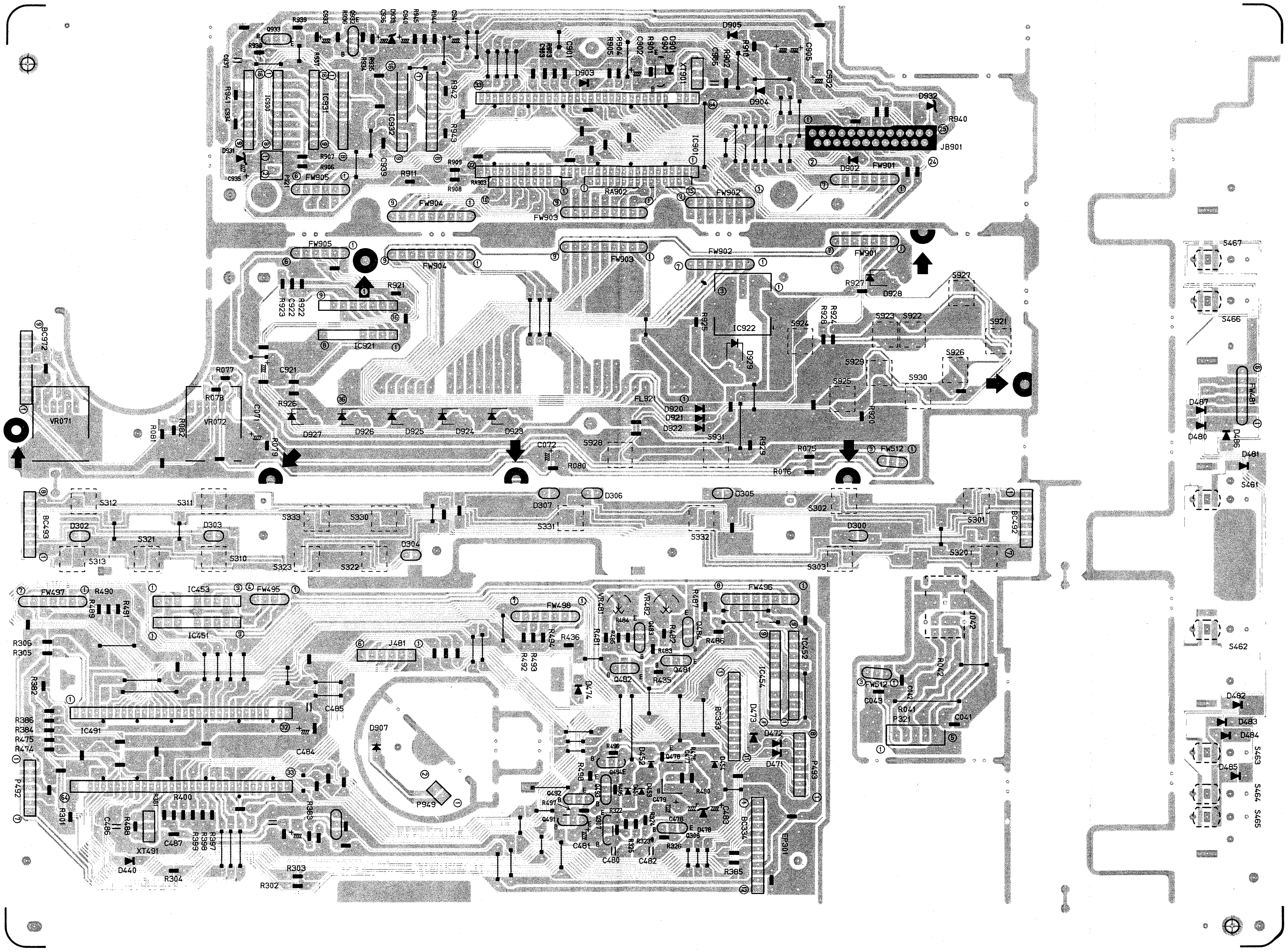
■ **Cassette & Power Amplifier**


EMW10238
EP401
IC331
IC332
IC351
IC501
IC531
JB401
JB402
JB501
JB531
JB561
JB001
J041
P331
P332
P333
P334
VR331
VR332
VR312
VR451
VR453
VR457
K401
K402
K403
R580
R581

■ Source Selector & Power Supply


EMW10237
JA211
R091
JA001
R032
R031
RY021
RY022
J015
D021
JB001
BC321
Q021
R036
JA531
R026
R025
C008
C016
D014
C014
D013
RY001
C015
D011
D012
C007
D055
R045
R053
FW001
EP001
C050
R057
C011
C012
D018
D017
C013
D019
D015
D020
D016
C054
Q052
C029
D054
JA501
R035
R037
C018
C019
R056
C028
D052
Q011
Q012
JA901
Q053
R058
R015
D009
C009
C060
D061
C059
D008
R011
R016
JA561
D060
D062
R054
Q062
Q064
R059
Q070
C061
R021
C062
R022
C063
R998
Q063
R020
R019
JA611
JA613
JA411
R023
R012
R013
JA402
JA401
R029
R024
R092
C983
C981
R981
C982
VR971
R972
R971
R980
D981
C984
C985
IC972
R982
C988
C987
R672
Q602
Q601
R673
R674
Q603
JB613
R668
R671
C643
R932
Q931
R661
R660
R656
D643
C598
R685
R676
R663
C647
C669
C665
C666
C670
C664
IC643
IC644
C661
C662
C603
C537
C641
C642
C639
IC602
C605
C606
R675
R620
C604
C650
C693
C657
C658
R630
L600
C630
C631
L601
R627
C649
C679
C675
C663
C667
C659
C655
C671
C653
IC641
IC642
C672
C660
C654
C594
C656
EP002
C617
C619
C625
IC601
C697
C629
R654
IC603
C628
C624
C626
C608
R644
C612
R611
R613
C634
J601
PHONO
PLAY
VCR
DAT
REC
L
R
F201
F102
F001
TB001
TB002
001
002
T001
R001
FW001
C001

■ Cassette & System Controller


IC930
IC931
IC932
IC901
XT901
JB901
R940
D932
D905
D903
D904
D902
FW901
FW902
FW903
FW904
FW905
RA902
R911
R942
R943
R944
R945
IC921
IC922
R921
R922
R923
R925
R927
C921
FL921
D920
D921
D922
D923
D924
D925
D926
D927
D928
D929
S921
S922
S923
S924
S925
S926
S927
S928
S929
S930
S931
BC972
VR071
VR072
R077
R078
R079
R080
R081
R082
R075
R076
C071
C072
FW512
BC493
BC492
S301
S302
S303
S310
S311
S312
S313
S320
S321
S322
S323
S330
S331
S332
S333
D300
D302
D303
D304
D305
D306
D307
FW497
FW495
FW496
FW498
IC451
IC452
IC453
IC454
IC491
J481
R490
R489
R491
R436
R494
R493
R492
VR481
VR482
Q481
Q482
R435
R485
R486
D474
D473
D472
D471
BC333
BC334
P493
P492
EP301
C484
C485
R306
R305
R382
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PARTS LIST

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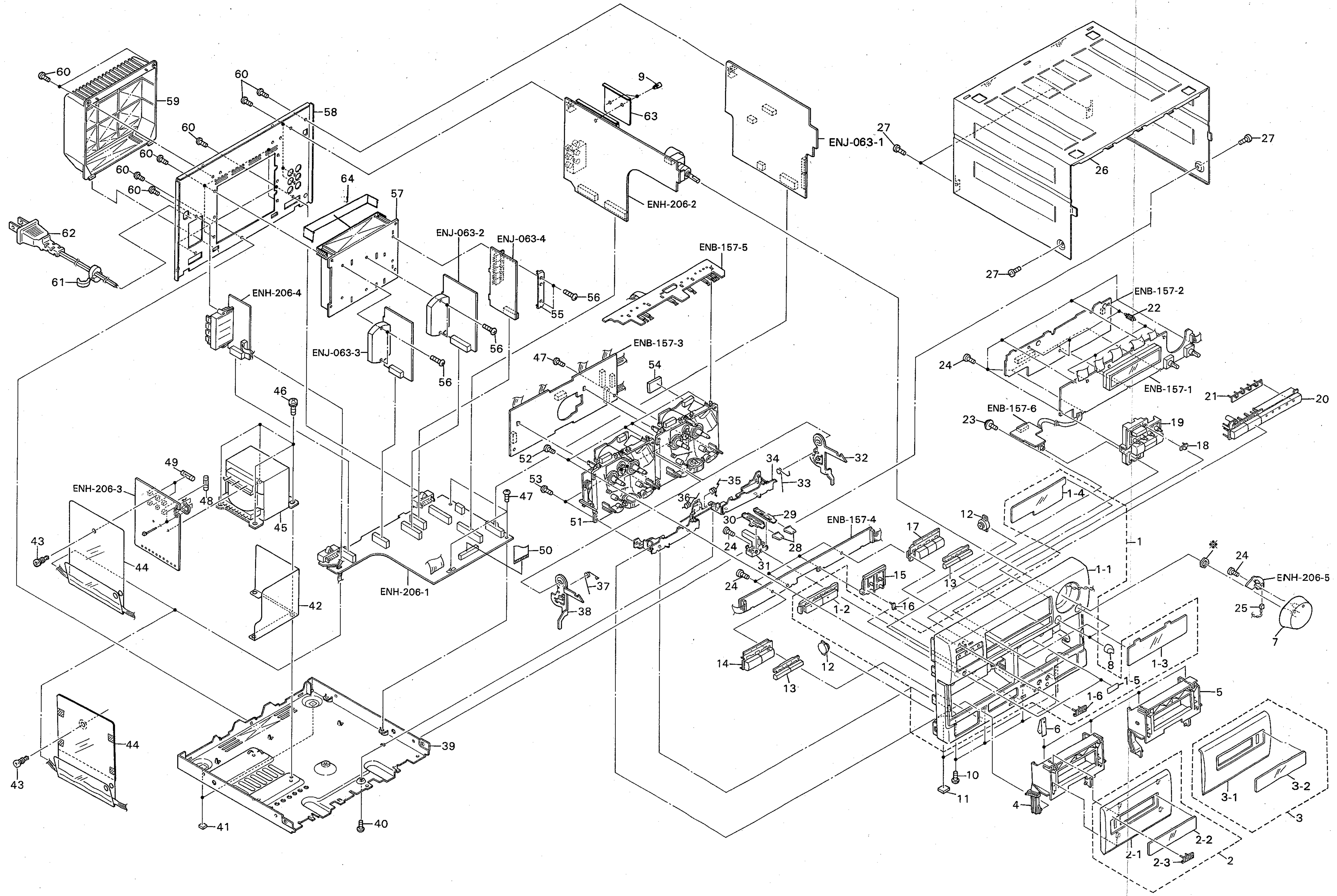
General Exploded View and Parts List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※ mark indicates attached part.

■Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-DXMX77MTNJS	Front Panel Ass'y	1		J
		EFP-DXMX77MTNCS	Front Panel Ass'y	1		C
	1-1	E102559-001	Front Panel	1		
	1-2	E207374-221	Push Button Ass'y	1	Dolby	
	1-3	E307965-003	Amp Window	1		J
		E307965-004	Amp Window	1		C
	1-4	E406980-002	FL Screen	1		J
	1-5	E69777-003	Reflector Plate	2		
	1-6	E406971-001	JVC Mark	1		
	2	E207365-224SA	Cassette Lid Ass'y	1	A	
	2-1	E207365-224	Cassette Lid	1	A	
	2-2	E307919-221	Cassette Window	1	A	
	2-3	E406971-001	JVC Mark	1	A	
	3	E207367-221SA	Cassette Lid Ass'y	1	B	
	3-1	E207367-221	Cassette Lid	1	B	
	3-2	E307919-221	Cassette Window	1	B	
	4	E207381-225	Cassette Holder	1	A	
	5	E207382-225	Cassette Holder	1	B	
	6	E406713-001	Cassette Spring	4		
	7	E307964-001	Volume Knob	1		
	8	E406691-002	Knob	2		
	9	E71335-001	Fastener	2		
	10	SBST3006Z	Screw	4		
	11	E406855-006	Spacer	2	Front Foot	
	12	E304434-002	Dumper Ass'y	2		
	13	E207389-221	Push Button	2	FF / Rew	
	14	E207371-221	Push Button Ass'y	1	A-Play	
	15	E207167-003	Push Button	1	Rec	
	16	E406673-001	Indicator	1		
	17	E207163-331	Push Button Ass'y	1	B-Play	
	18	E406938-221	Indicator	1	Power	
	19	E207397-001	Push Button	1	Power / SEA	
	20	E207395-001	Push Button	1	Source	
	21	E307967-001	Indicator	1	Source	
	22	E307112-001	Fastener	3		
	23	E407098-001	Special Screw	1		
	24	SDSF2610Z	Screw	13		
	25	EWS142-029	Socket Wire Ass'y	1		
	26	E207399-002	Metal Cover	1		
	27	SDSG3006M	Screw	4		
	28	E406667-003	Push Button	2	Eject	
	29	E406668-004	Push Plate	1	B	
	30	E406668-003	Push Plate	1	A	
	31	E307598-002	Eject Guide	1		
	32	E307600-002	Eject Lever	1	B	
	33	E406670-001	Eject Spring	1	B	
	34	E207153-002	Holder Bracket	1		
	35	E406672-001	Holder Spring	1	B	
	36	E406671-001	Holder Spring	1	A	
	37	E406669-001	Eject Spring	1	A	
	38	E307599-002	Eject Lever	1	A	
	39	E102561-001	Chassis Base	1		
	40	SBST3006M	Screw	1		
	41	E406855-007	Spacer	2	Rear Foot	
	42	E407086-001	Shield Cover	1	SH001	
	43	E48729-008	Plastic Rivet	1		
	44	E308088-001	Protect Cover	1		C
		E308088-002	Protect Cover	1		J
⚠	45	ETP1050-29JA	Power Transformer	1	T001	
	46	E65389-004	Special Screw	4		

⚠: Safety Parts

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	47	SBSG3008CC	Screw	4		
⚠	48	QMF51U1-3R15S	Fuse	1	F001	
⚠	49	QMF51U1-1R6S	Fuse	1	F101 , 102	
	50	EWR125K-34TT	FFC Cable	1	FC901	
	51	————	Cassette Mechanism Unit	1	See Page 2-7	
	52	SBSF3010C	Screw	4		
	53	SBST3008C	Screw	4		
	54	EXO014008R60S13	Spacer	1		
	55	E406969-221	Leaf Spring	1		
	56	SBSG3014CC	Screw	6		
	57	E307968-001	Heat Sink	1		
	58	E207400-001	Rear Panel	1		J
		E207400-002	Rear Panel	1		C
	59	E207356-222	Rear Cover	1		
	60	E73273-003	Special Screw	14		
	61	QHS3876-162	Cord Stopper	1		
	62	QMP1D00-200H	Power Cord	1		
	63	E407161-001	Shield Cover	1		
	64	EXO150010H09S11	Felt Spacer	1		
	—	E61029-009	Number Label	1		C
	—	E307570-001	Number Label	1		J
	—	QZL1001-001	UL Label	1		J
	—	E45858-002	CSA Label	1		C
	—	E75803-001	Fuse Caution Label	1		J
	—	E75804-001	Caution Label	1		C
	—	E407097-001	Label	1		J

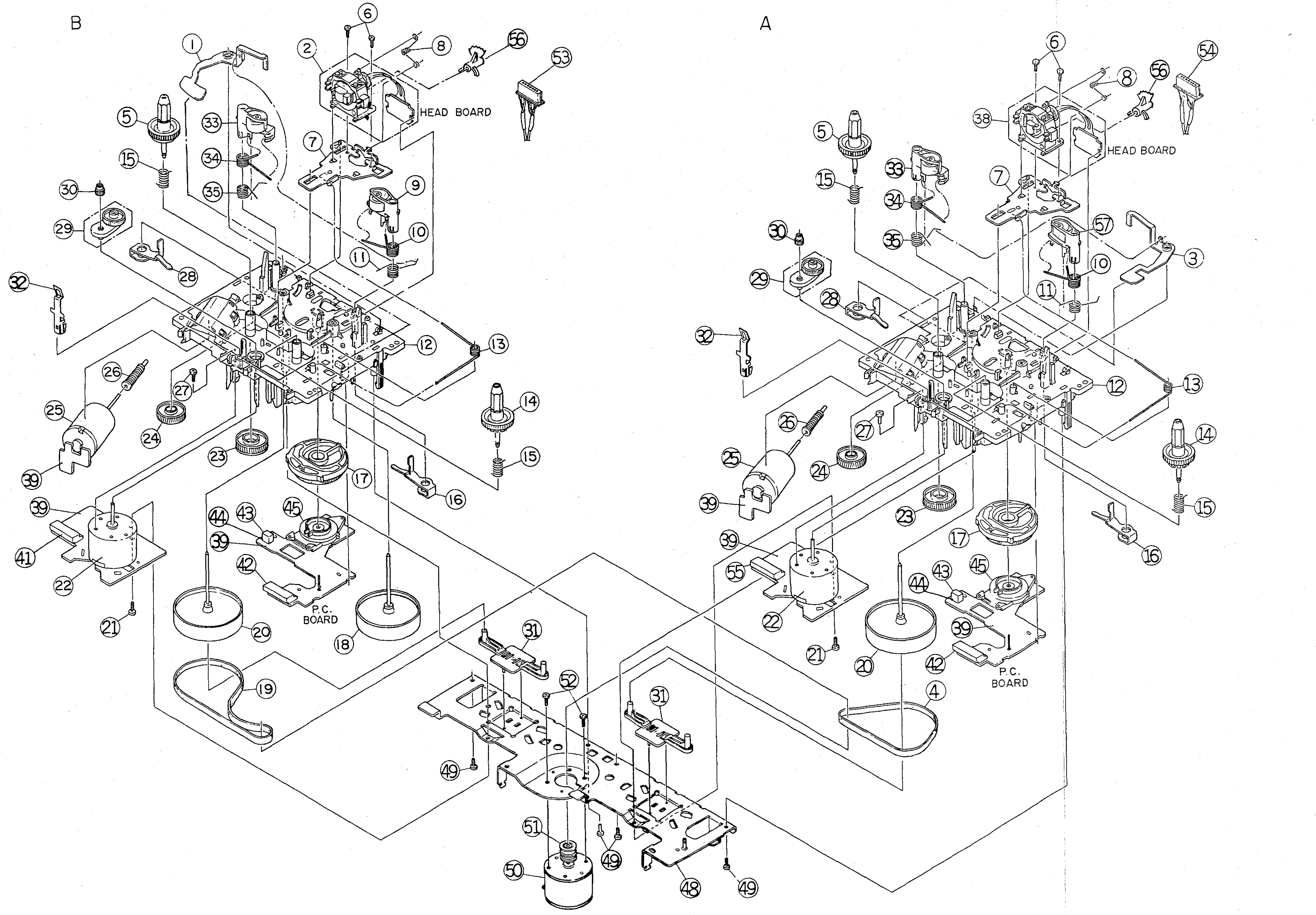
⚠: Safety Parts

The Marks Designated Areas

J……………………the U.S.A.
C……………………Canada

No mark indicates all areas.

Cassette Mechanism Ass'y and Parts List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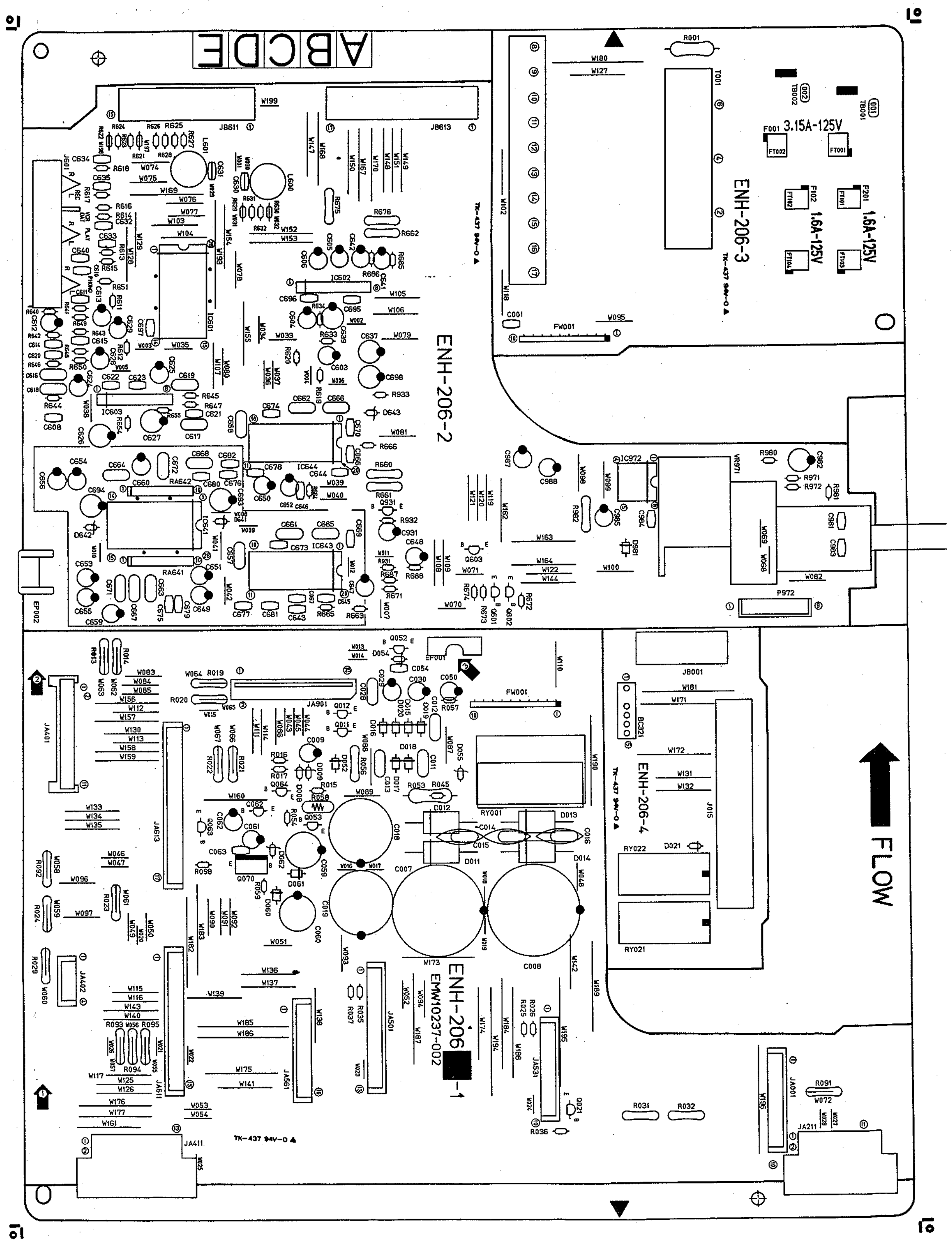
■ Parts List (Cassette Mechanism)

Item	Part Number	Part Name	Q'ty	Description	Areas
1	VKL7130-001	Eject Safety	1	B Mechanism	
2	VKS3551-00B	Head Mount Ass'y	1	B Mechanism	
3	VKL7131-001	Eject Safety	1	A Mechanism	
4	VKB3001-052	Belt	1	A Mechanism	
5	VKS5321-00D	Reel Ass'y	2	Right	
6	SDST2004Z	Screw	4	Head Mount Ass'y	
7	VKL6942-00E	Head Base Ass'y	2		
8	VKW4994-001	Head Spring	2		
9	VKP4221-00B	Pinch Roller Ass'y	1	B Mechanism (Left)	
10	VKW4982-001	Torsion Spring	2	B Mechanism (Left)	
11	VKW4933-004	Torsion Spring	2	Left	
12	VKS1112-30H	Chassis Base Ass'y	2		
13	VKW4930-002	Return Spring	2		
14	VKS3480-005	Reel Ass'y	2	Left	
15	VKW4928-003	B.T. Spring	4	Reel Ass'y	
16	VKL6940-002	Pinch Roller Lever	2	Left	
17	VKS2209-005	Controller Cam	2		
18	VKF3186-00C	Flywheel Ass'y	1	B Mechanism (Left)	
19	VKB3001-048	Belt	1	B Mechanism	
20	VKF3184-00C	Flywheel Ass'y	2	Right	
21	SDSF2608Z	Screw	2		
22	MMN-6F4RA38	D.C. Motor	2	Reel	
23	VKS5331-002	Gear (6)	2		
24	VKS5330-004	Gear (5)	2		
25	MXN-13FB12F	D.C. Motor	2	Cam	
26	VKS5329-002	Gear (4)	2		
27	SDSP2605Z	Screw	2		
28	VKL6939-002	Pinch Roller Lever	2	Right	
29	VKS5325-00F	FR Arm Ass'y	2		
30	VKS5328-002	Reel Motor Gear	2		
31	VKS5327-003	Trust Plate	2		
32	VKY4628-002	Pack Spring	2		
33	VKP4219-00C	Pinch Roller Ass'y	2	Right	
34	VKW4981-001	Torsion Spring	2	Right	
35	VKW4932-004	Torsion Spring	2	Right	
38	VKS3550-00B	Head Mount Ass'y	1	A Mechanism	
39	VMW2345-002	Printed Board	2		
41	VMC0107-R08	Connector	1	B Mechanism	
42	VMC0107-R07	Connector	2		
43	DN6851A	Hall IC	2		
44	VKS3487-001	IC Holder	2		
45	VKS3587-00A	Cam Switch Ass'y	2		
48	VKM3419-00E	FM Bracket	1		
49	SDSF2605Z	Screw	4		
50	MMI-6H2LWSK	Motor	1	Capstan	
51	VKR4632-002	Motor Pulley	1		
52	SPSP2603Z	Screw	2		
53	VDM007P-040I	Head Wire	1	B Mechanism	
54	VDM003P-040I	Head Wire	1	A Mechanism	
55	VMC0107-R04	Connector	1	A Mechanism	
56	VKS3485-002	Head Gear	2	A Mechanism (Left)	
57	VKP3118-002	Pinch Roller	1		

Printed Circuit Board Ass'y and Parts List

■ ENH-206☐ Source Selector & Power Supply PC Board Ass'y

Note : ENH-206☐ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENH-206 [A]	the U.S.A.
ENH-206 [B]	Canada

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q011	DTC114YS	SILICON ROHM	
	Q012	DTC114YS	SILICON ROHM	
	Q021	2SC1740S(R,S)	SILICON ROHM	
	Q052	2SC1741A(Q,R)	SILICON ROHM	
	Q053	2SC1740S(R,S)	SILICON ROHM	
	Q062	DTA144ES	SILICON ROHM	
	Q063	DTC143TS	SILICON ROHM	
	Q064	DTC114YS	SILICON ROHM	
	Q087	2SB1357(E,F)	SILICON ROHM	
	Q601	2SD2144S(VW)	SILICON ROHM	
	Q602	2SD2144S(VW)	SILICON ROHM	
	Q603	DTA144ES	SILICON ROHM	
	Q931	2SC1740S(R,S)	SILICON ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC601	TC9163N	I.C. TOSHIBA	
	IC602	BA15218N	I.C. ROHM	
	IC603	VC4580LD	I.C. DAINICHI	
	IC641	LC7522	I.C. SANYO	
	IC643	LA3607S	I.C. SANYO	
	IC644	LA3607S	I.C. SANYO	
	IC972	LB1639-CV	I.C. SANYO	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D008	1SS133	SILICON ROHM	
	D009	MTZ5.1JC	ZENER ROHM	
	D011	S3V20F	SILICON SINDENGEN	
	D012	S3V20F	SILICON SINDENGEN	
	D013	S3V20F	SILICON SINDENGEN	
	D014	S3V20F	SILICON SINDENGEN	
	D015	1SR139-200	SILICON ROHM	
	D016	1SR139-200	SILICON ROHM	
	D017	1SR139-200	SILICON ROHM	
	D018	1SR139-200	SILICON ROHM	
	D019	1SR139-200	SILICON ROHM	
	D020	1SR139-200	SILICON ROHM	
	D021	1SS133	SILICON ROHM	
	D052	1SR139-200	SILICON ROHM	
	D054	MTZ5.1JC	ZENER ROHM	
	D055	1SS133	SILICON ROHM	
	D060	1SR139-200	SILICON ROHM	
	D061	1SR139-200	SILICON ROHM	
	D062	MTZ30JC	ZENER ROHM	
	D641	RD6.8JSB3	ZENER NEC	
	D642	RD6.8JSB3	ZENER NEC	
	D643	MTZ5.1JC	ZENER ROHM	
	D981	1SR139-200	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C001	QCVB1CM-103	0.01MF 16V CERAMIC	
	C007	EEW4205-688T	6800MF ELECTRO	
	C008	EEW4205-688T	6800MF ELECTRO	
	C009	QEK51HM-225G	2.2MF 50V ELECTRO	
	C011	QFV81HJ-104	0.1MF 50V T.FILM	
	C012	QFV81HJ-104	0.1MF 50V T.FILM	
	C013	QFV81HJ-104	0.1MF 50V T.FILM	
	C014	QFN82AK-103	0.01MF 100V MYLAR	
	C015	QFN81HJ-103	0.01MF 50V MYLAR	
	C016	QFN81HJ-103	0.01MF 50V MYLAR	
	C018	QETB1VM-338	3300MF 35V ELECTRO	
	C019	QETB1VM-228N	2200MF 35V ELECTRO	
	C028	QFV81HJ-104	0.1MF 50V T.FILM	
	C029	QETB1HM-106	10MF 50V ELECTRO	
	C030	QETB1HM-106	10MF 50V ELECTRO	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C050	QETB1HM-106	10MF 50V ELECTRO	
	C054	QCVB1CM-103	0.01MF 16V CERAMIC	
	C059	QETB1JM-227	220MF 63V ELECTRO	
	C060	QETB1JM-227	220MF 63V ELECTRO	
	C061	QETB1HM-226	22MF 50V ELECTRO	
	C062	QETB1HM-226	22MF 50V ELECTRO	
	C063	QCGB1HK-102	1000PF 50V CERAMIC	
	C066	QCSB1HJ-470	47PF 50V CERAMIC	
	C067	QCSB1HJ-470	47PF 50V CERAMIC	
	C603	EEZ5009-106	10MF ELECTRO	
	C604	EEZ5009-106	10MF ELECTRO	
	C605	EEZ5009-106	10MF ELECTRO	
	C606	EEZ5009-106	10MF ELECTRO	
	C608	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C610	QCBB1HK-331	330PF 50V CERAMIC	
	C611	QCBB1HK-331	330PF 50V CERAMIC	
	C612	QETB1HM-475	4.7MF 50V ELECTRO	
	C613	QETB1HM-475	4.7MF 50V ELECTRO	
	C614	QCBB1HK-101	100PF 50V CERAMIC	
	C615	QCBB1HK-101	100PF 50V CERAMIC	
	C616	QFLB1HJ-182	1800PF 50V MYLAR	
	C617	QFLB1HJ-182	1800PF 50V MYLAR	
	C618	QFLB1HJ-682	6800PF 50V MYLAR	
	C619	QFLB1HJ-682	6800PF 50V MYLAR	
	C620	QCBB1HK-101	100PF 50V CERAMIC	
	C621	QCBB1HK-101	100PF 50V CERAMIC	
	C622	QCBB1HK-101	100PF 50V CERAMIC	
	C623	QCBB1HK-101	100PF 50V CERAMIC	
	C624	QETB1HM-475	4.7MF 50V ELECTRO	
	C625	QETB1HM-475	4.7MF 50V ELECTRO	
	C626	QETB1EM-476	47MF 25V ELECTRO	
	C627	QETB1EM-476	47MF 25V ELECTRO	
	C628	QETB1EM-476	47MF 25V ELECTRO	
	C629	QETB1EM-476	47MF 25V ELECTRO	
	C632	QCBB1HK-331	330PF 50V CERAMIC	
	C633	QCBB1HK-331	330PF 50V CERAMIC	
	C634	QCBB1HK-331	330PF 50V CERAMIC	
	C635	QCBB1HK-331	330PF 50V CERAMIC	
	C637	EEZ2505-476	47MF ELECTRO	
	C639	EEZ2505-476	47MF ELECTRO	
	C641	EEZ5009-106	10MF ELECTRO	
	C642	EEZ5009-106	10MF ELECTRO	
	C643	QCSB1HJ-470	47PF 50V CERAMIC	
	C644	QCSB1HJ-470	47PF 50V CERAMIC	
	C645	QCBB1HK-101	100PF 50V CERAMIC	
	C646	QCBB1HK-101	100PF 50V CERAMIC	
	C647	EEZ5009-106	10MF ELECTRO	
	C648	EEZ5009-106	10MF ELECTRO	
	C649	QETB1HM-475	4.7MF 50V ELECTRO	
	C650	QETB1HM-475	4.7MF 50V ELECTRO	
	C651	QETB1HM-225	2.2MF 50V ELECTRO	
	C652	QETB1HM-225	2.2MF 50V ELECTRO	
	C653	QETB1HM-105	1MF 50V ELECTRO	
	C654	QETB1HM-105	1MF 50V ELECTRO	
	C657	QFV81HJ-823	0.082MF 50V T.FILM	
	C658	QFV81HJ-823	0.082MF 50V T.FILM	
	C659	QEK51HM-224G	0.22MF 50V ELECTRO	
	C660	QEK51HM-224G	0.22MF 50V ELECTRO	
	C661	QFV81HJ-473	0.047MF 50V T.FILM	
	C662	QFV81HJ-473	0.047MF 50V T.FILM	
	C663	QFV81HJ-104	0.1MF 50V T.FILM	
	C664	QFV81HJ-104	0.1MF 50V T.FILM	
	C665	QFV81HJ-183	0.018MF 50V T.FILM	
	C666	QFV81HJ-183	0.018MF 50V T.FILM	
	C667	QFV81HJ-393	0.039MF 50V T.FILM	
	C668	QFV81HJ-393	0.039MF 50V T.FILM	
	C669	QCXB1CM-682	6800PF 16V CERAMIC	
	C670	QCXB1CM-682	6800PF 16V CERAMIC	
	C671	QFV81HJ-153	0.015MF 50V T.FILM	
	C672	QFV81HJ-153	0.015MF 50V T.FILM	
	C673	QCXB1CM-272	2700PF 16V CERAMIC	
	C674	QCXB1CM-272	2700PF 16V CERAMIC	
	C675	QCXB1CM-562	5600PF 16V CERAMIC	
	C676	QCXB1CM-562	5600PF 16V CERAMIC	
	C677	QCXB1CM-122	1200PF 16V CERAMIC	
	C678	QCXB1CM-122	1200PF 16V CERAMIC	
	C679	QCXB1CM-222	2200PF 16V CERAMIC	
	C680	QCXB1CM-222	2200PF 16V CERAMIC	
	C681	QCBB1HK-471	470PF 50V CERAMIC	
	C682	QCBB1HK-471	470PF 50V CERAMIC	
	C693	QETB1CM-226	22MF 16V ELECTRO	
	C694	QETB1CM-226	22MF 16V ELECTRO	
	C697	QCBB1HK-561	560PF 50V CERAMIC	
	C698	QETB1AM-107	100MF 10V ELECTRO	
	C931	QETB1HM-105	1MF 50V ELECTRO	
	C981	QCVB1CM-103	0.01MF 16V CERAMIC	
	C982	QETB1CM-226	22MF 16V ELECTRO	
	C983	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C984	QCVB1CM-103	0.01MF 16V CERAMIC	
	C985	QETB1AM-476	47MF 10V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	R001	QRC128K-275EM	2.7M 1/2W COMPOSI	
⚠	R013	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
	R015	QRD167J-103	10K 1/6W CARBON	
	R016	QRD167J-103	10K 1/6W CARBON	
	R017	QRD167J-102	1K 1/6W CARBON	
⚠	R019	QRD14CJ-8R2S	8.2 1/4W UNF.CARBON	
⚠	R020	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R021	QRD14CJ-391S	390 1/4W UNF.CARBON	
⚠	R022	QRD14CJ-3R9S	3.9 1/4W UNF.CARBON	
	R025	QRD167J-823	82K 1/6W CARBON	
	R026	QRD167J-104	100K 1/6W CARBON	
⚠	R029	QRD14CJ-3R9S	3.9 1/4W UNF.CARBON	
⚠	R031	QRD14CJ-121S	47 1/4W UNF.CARBON	
⚠	R032	QRD12CJ-820S	82 1/2W R.NETWORK	
	R035	QRD167J-222	2.2K 1/6W CARBON	
	R036	QRD167J-152	1.5K 1/6W CARBON	
	R037	QRD167J-103	10K 1/6W CARBON	
	R045	QRD167J-122	1.2K 1/6W CARBON	A
⚠	R053	QRG022J-271A	270 2W O.M.FILM	A
⚠	R053	QRG022J-121A	120 2W O.M.FILM	B
	R054	QRD167J-222	2.2K 1/6W CARBON	
⚠	R056	QRD14CJ-220S	22 1/4W UNF.CARBON	
	R057	QRD167J-223	22K 1/6W CARBON	
⚠	R058	PTH61G25AR4R7M	FUSIBLE	
	R059	QRD167J-332	3.3K 1/6W CARBON	
⚠	R093	QRD14CJ-3R9S	3.9 1/4W UNF.CARBON	
⚠	R094	QRD14CJ-3R9S	3.9 1/4W UNF.CARBON	
	R098	QRD167J-121	120 1/6W CARBON	
	R611	QRD167J-104	100K 1/6W CARBON	
	R612	QRD167J-104	100K 1/6W CARBON	
	R613	QRD167J-153	15K 1/6W CARBON	
	R614	QRD167J-153	15K 1/6W CARBON	
	R615	QRD167J-104	100K 1/6W CARBON	
	R616	QRD167J-104	100K 1/6W CARBON	
	R617	QRD167J-102	1K 1/6W CARBON	
	R618	QRD167J-102	1K 1/6W CARBON	
	R619	QRD167J-104	100K 1/6W CARBON	
	R620	QRD167J-104	100K 1/6W CARBON	
	R623	QRD167J-562	5.6K 1/6W CARBON	
	R624	QRD167J-562	5.6K 1/6W CARBON	
	R625	QRD167J-222	2.2K 1/6W CARBON	
	R626	QRD167J-222	2.2K 1/6W CARBON	
	R627	QRD167J-562	5.6K 1/6W CARBON	
	R628	QRD167J-562	5.6K 1/6W CARBON	
	R631	QRD167J-103	10K 1/6W CARBON	
	R632	QRD167J-103	10K 1/6W CARBON	
	R633	QRD167J-104	100K 1/6W CARBON	
	R634	QRD167J-104	100K 1/6W CARBON	
	R640	QRD167J-222	2.2K 1/6W CARBON	
	R641	QRD167J-222	2.2K 1/6W CARBON	
	R642	QRD167J-473	47K 1/6W CARBON	
	R643	QRD167J-473	47K 1/6W CARBON	
	R644	QRD167J-474	470K 1/6W CARBON	
	R645	QRD167J-474	470K 1/6W CARBON	
	R646	QRD167J-393	39K 1/6W CARBON	
	R647	QRD167J-393	39K 1/6W CARBON	
	R648	QRD167J-751	750 1/6W CARBON	
	R649	QRD167J-751	750 1/6W CARBON	
	R650	QRD167J-561	560 1/6W CARBON	
	R651	QRD167J-561	560 1/6W CARBON	
	R654	QRD167J-391	390 1/6W CARBON	
	R655	QRD167J-391	390 1/6W CARBON	
⚠	R660	QRD14CJ-391S	390 1/4W UNF.CARBON	
⚠	R661	QRD14CJ-271S	270 1/4W UNF.CARBON	
⚠	R662	QRD14CJ-271S	270 1/4W UNF.CARBON	
	R663	QRD167J-123	12K 1/6W CARBON	
	R664	QRD167J-113	11K 1/6W CARBON	
	R665	QRD167J-113	11K 1/6W CARBON	
	R666	QRD167J-123	12K 1/6W CARBON	
	R671	QRD167J-472	4.7K 1/6W CARBON	
	R672	QRD167J-472	4.7K 1/6W CARBON	
	R673	QRD167J-103	10K 1/6W CARBON	
	R674	QRD167J-103	10K 1/6W CARBON	
⚠	R675	QRD14CJ-680S	68 1/4W UNF.CARBON	
⚠	R676	QRD14CJ-680S	68 1/4W UNF.CARBON	
	R685	QRD167J-104	100K 1/6W CARBON	
	R686	QRD167J-104	100K 1/6W CARBON	
	R687	QRD167J-104	100K 1/6W CARBON	
	R688	QRD167J-104	100K 1/6W CARBON	
	R931	QRD167J-102	1K 1/6W CARBON	
	R932	QRD167J-105	1M 1/6W CARBON	
	R933	QRD167J-153	15K 1/6W CARBON	
	R971	QRD167J-562	5.6K 1/6W CARBON	
	R972	QRD167J-562	5.6K 1/6W CARBON	
	R980	QRD167J-102	1K 1/6W CARBON	
	R981	QRD167J-102	1K 1/6W CARBON	
⚠	R982	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
	RA641	QRB099J-474	470K 1/10W R.NETWORK	
	RA642	QRB099J-474	470K 1/10W R.NETWORK	
	VR971	QVDC91A-E15C	100K VARIABLE	

⚠ : SAFETY PARTS

Others

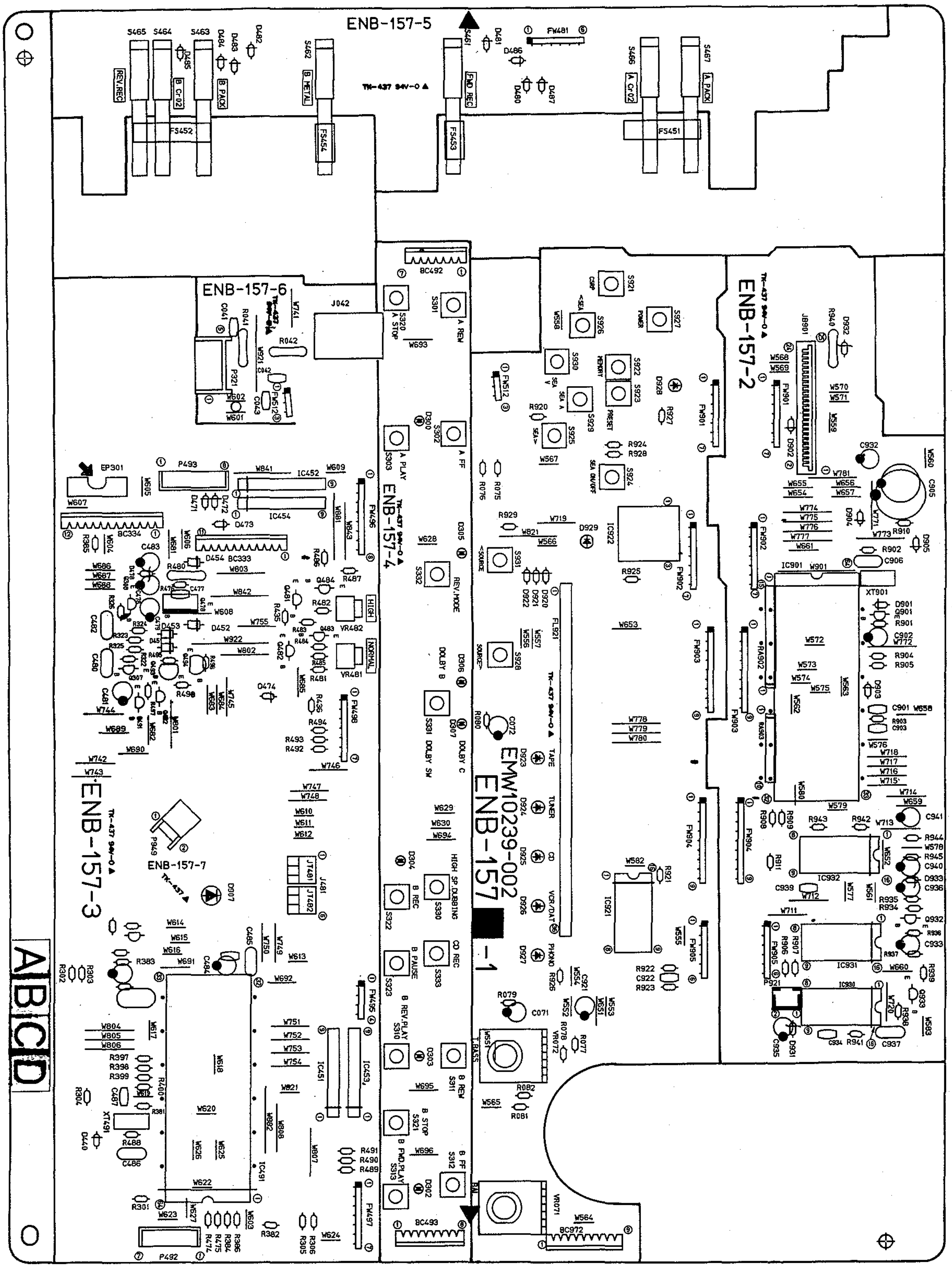
⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10237-003	PRINTED BOARD	
	J015	EMB90TV-803A	SPEAKER TERMINAL	
	J601	EMN00TV-608B	6P PIN JACK	
	P972	EMV5109-009A	PLUG ASSY(6PIN)	
	BC321	EWS245-009	SOCKET WIRE	
	BK601	E308131-001	SHIELD COVER	
	EP001	E70859-001	EARTH PLATE	
	EP002	E70225-002	EARTH PLATE	
	FT001	EMG7331-002	FUSE CLIP	
	FT002	EMG7331-002U	FUSE CLIP	
	FT101	EMG7331-002	FUSE CLIP	
	FT102	EMG7331-002	FUSE CLIP	
	FT103	EMG7331-002U	FUSE CLIP	
	FT104	EMG7331-002U	FUSE CLIP	
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	A
	FW001	EWR3AB-25SST	FLAT WIRE(10PIN)	B
	JA001	EMV5125-010	PLUG ASSY(10PIN)	
	JA211	EMV7127-011	CONNECTOR(11PIN)	
	JA401	EMV5140-011	PLUG ASSY(11PIN)	
	JA402	EMV5125-004	PLUG ASSY(4PIN)	
	JA411	EMV7127-013	CONNECTOR(13PIN)	
	JA501	EMV5125-013	PLUG ASSY(13PIN)	
	JA531	EMV5125-010	PLUG ASSY(10PIN)	
	JA561	EMV5125-010	PLUG ASSY(10PIN)	
	JA611	EMV5125-015	PLUG ASSY(15PIN)	
	JA613	EMV5125-017	PLUG ASSY(17PIN)	
	JA901	EMV7123-025	CONNECTOR(25PIN)	
	JB001	EMV7125-010R	CONNECTOR(10PIN)	
	JB611	EMV7125-015R	CONNECTOR(15PIN)	
	JB613	EMV7125-017R	CONNECTOR(17PIN)	
	RY001	ESK1D12-211M	RELAY	A
	RY001	ESK1D12-212M	RELAY	B
※	RY021	ESK8D24-212	RELAY	
※	RY022	ESK8D24-212	RELAY	
	TB001	EMZ4001-001	TAB	
	TB002	EMZ4001-001	TAB	

⚠ : SAFETY PARTS

※ Use the ESK8D24-212 instead of the ESK7D24-2120 (RY021,RY022) and use the QRD14CJ-470S (47Ω 1/4W UNF.C.) for R031 and the QRD12CJ-820S (82Ω 1/2W C.) for R032 at the same time.

■ENB-157 ☐ FL Display & System Controller PC Board Ass'y

Note : ENB-157 ☐ varies according to the areas employed. See note (1) when placing an order.


ENB-157-5
ENB-157-6
ENB-157-4
ENB-157-2
ENB-157-3
ENB-157-7
EMW10239-002
ENB-157 -1
REV.REC
B Cr O2
B PACK
B METAL
FWD REC
A Cr O2
A PACK
FS452
FS454
FS453
FS451
TH-437 94V-0
A STOP
A REW
A PLAY
A FF
REV.MODE
DOLBY B
DOLBY C
DOLBY SW
HIGH SP.DUBBING
B REC
CD REC
B PAUSE
B REV.PLAY
B REW
B STOP
B FWD.PLAY
B FF
HIGH
NORMAL
POWER
MEMORY
PRESET
TAPE
TUNER
CD
VCR/DAT
PHONO
BASS
IC901
IC452
IC454
IC451
IC453
IC491
IC921
IC922
IC930
IC931
IC932
BC492
BC493
BC972
J042
P492
P493
FL921
XT901
A B C D

Note (1)

PC Board Ass'y	Designated Areas
ENB-157 A	the U.S.A.
ENB-157 B	Canada

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q307	2SC1740S(R,S)	SILICON ROHM	
	Q308	2SC1740S(R,S)	SILICON ROHM	
	Q478	2SD2037(E,F)	SILICON ROHM	
	Q481	2SC1740(R,S)	SILICON ROHM	
	Q482	2SC1740(R,S)	SILICON ROHM	
	Q483	2SA933S(R,S)	SILICON ROHM	
	Q484	2SA933S(R,S)	SILICON ROHM	
	Q491	DTC144ES	SILICON ROHM	
	Q492	DTC144ES	SILICON ROHM	
	Q493	2SA934(Q,R)	SILICON ROHM	
	Q494	2SA934(Q,R)	SILICON ROHM	
	Q901	DTC114YS	SILICON ROHM	
	Q932	2SC1740S(R,S)	SILICON ROHM	
	Q933	2SC1740S(R,S)	SILICON ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC451	BA6218	I.C. ROHM	
	IC452	BA6218	I.C. ROHM	
	IC453	BA6218	I.C. ROHM	
	IC454	BA6218	I.C. ROHM	
	IC491	HD614081SC34	I.C. HITACHI	
	IC901	MN171202JPS	I.C. MATSUSHITA	
	IC921	TC74HC595AP	I.C. TOSHIBA	
	IC922	SPS-420-1	I.C. SANYO	
	IC930	XR1091ECP	I.C. EXAR JAPAN	
	IC931	TC4052BP	I.C. TOSHIBA	
	IC932	UPD7001C	I.C. NEC	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D300	SLR-34MC3F	L.E.D. ROHM	
	D302	SLR-34MC3F	L.E.D. ROHM	
	D303	SLR-34MC3F	L.E.D. ROHM	
	D304	SLR-34VC3F	L.E.D. ROHM	
	D305	SLR-34VC3F	L.E.D. ROHM	
	D306	SLR-34VC3F	L.E.D. ROHM	
	D451	1SR139-200	SILICON ROHM	
	D452	1SR139-200	SILICON ROHM	
	D453	1SR139-200	SILICON ROHM	
	D454	1SR139-200	SILICON ROHM	
	D471	1SS133	SILICON ROHM	
	D472	1SS133	SILICON ROHM	
	D473	1SS133	SILICON ROHM	
	D474	1SS133	SILICON ROHM	
	D478	MTZ6.2JC	ZENER ROHM	
	D481	1SS133	SILICON ROHM	
	D482	1SS133	SILICON ROHM	
	D483	1SS133	SILICON ROHM	
	D484	1SS133	SILICON ROHM	
	D485	1SS133	SILICON ROHM	
	D486	1SS133	SILICON ROHM	
	D487	1SS133	SILICON ROHM	
	D901	1SS133	SILICON ROHM	
	D902	1SS133	SILICON ROHM	
	D903	1SS133	SILICON ROHM	
	D904	1SS133	SILICON ROHM	
	D905	1SS133	SILICON ROHM	
	D907	LN282RPX	L.E.D.	
	D920	1SS133	SILICON ROHM	
	D921	1SS133	SILICON ROHM	
	D922	1SS133	SILICON ROHM	
	D923	SLR-34VC3F	L.E.D. ROHM	
	D924	SLR-34VC3F	L.E.D. ROHM	
	D925	SLR-34VC3F	L.E.D. ROHM	
	D926	SLR-34VC3F	L.E.D. ROHM	
	D927	SLR-34VC3F	L.E.D. ROHM	
	D928	SLR-34VC3F	L.E.D. ROHM	
	D929	SLR-34VC3F	L.E.D. ROHM	
	D931	MTZ5.1JC	ZENER ROHM	
	D932	MTZ7.5JC	ZENER ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D933	MTZ5.1JC	ZENER ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C071	QEK51HM-105G	1MF 50V ELECTRO	
	C072	QEK51HM-105G	1MF 50V ELECTRO	
	C477	QCVB1CM-103	0.01MF 16V CERAMIC	
	C478	QETB1AM-476	47MF 10V ELECTRO	
	C479	QETB1AM-476	47MF 10V ELECTRO	
	C480	QCF21HP-223	0.022MF 50V CERAMIC	
	C481	QETB1HM-105	1MF 50V ELECTRO	
	C482	QCF21HP-223	0.022MF 50V CERAMIC	
	C483	QETB1CM-476	47MF 16V ELECTRO	
	C484	QETB1CM-476	47MF 16V ELECTRO	
	C485	QCZ0205-155	1.5MF 25V CERAMIC	
	C486	QFLB1HJ-473	0.047MF 50V MYLAR	
	C487	QCVB1CM-103	0.01MF 16V CERAMIC	
	C901	QCVB1CM-103	0.01MF 16V CERAMIC	
	C902	QETB1HM-225	2.2MF 50V ELECTRO	
	C903	QCVB1CM-103	0.01MF 16V CERAMIC	
	C905	QETB0JM-108	1000MF 6.3V ELECTRO	
	C906	QCZ0205-155	1.5MF 25V CERAMIC	
	C921	QEK51CM-107	100MF 16V ELECTRO	
	C932	QETB1EM-106	10MF 25V ELECTRO	
	C933	QETB1HM-474	0.47MF 50V ELECTRO	
	C934	QCGB1HK-102	1000PF 50V CERAMIC	
	C935	QETB1HM-474	0.47MF 50V ELECTRO	
	C936	QETB1CM-476	47MF 16V ELECTRO	
	C937	QFLB1HJ-104	0.1MF 50V MYLAR	
	C939	QCSB1HJ-470	47PF 50V CERAMIC	
	C940	QETB1EM-106	10MF 25V ELECTRO	
	C941	QETB1HM-475	4.7MF 50V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R041	QRD12CJ-331S	330 1/2W R.NETWORK	
	R042	QRD12CJ-331S	330 1/2W R.NETWORK	
	R075	QRD167J-123	12K 1/6W CARBON	
	R076	QRD167J-123	12K 1/6W CARBON	
	R077	QRD167J-102	1K 1/6W CARBON	
	R078	QRD167J-102	1K 1/6W CARBON	
	R079	QRD167J-222	2.2K 1/6W CARBON	
	R080	QRD167J-222	2.2K 1/6W CARBON	
	R081	QRD167J-102	1K 1/6W CARBON	
	R082	QRD167J-102	1K 1/6W CARBON	
	R301	QRD167J-331	330 1/6W CARBON	
	R302	QRD167J-331	330 1/6W CARBON	
	R303	QRD167J-331	330 1/6W CARBON	
	R304	QRD167J-561	560 1/6W CARBON	
	R305	QRD167J-471	470 1/6W CARBON	
	R306	QRD167J-471	470 1/6W CARBON	
	R322	QRD167J-753	75K 1/6W CARBON	
	R323	QRD167J-105	1M 1/6W CARBON	
	R324	QRD167J-103	10K 1/6W CARBON	
	R325	QRD167J-753	75K 1/6W CARBON	
	R326	QRD167J-105	1M 1/6W CARBON	
	R381	QRD167J-472	4.7K 1/6W CARBON	
	R382	QRD167J-103	10K 1/6W CARBON	
	R383	QRD167J-271	270 1/6W CARBON	
	R384	QRD167J-103	10K 1/6W CARBON	
	R385	QRD167J-151	150 1/6W CARBON	
	R397	QRD167J-103	10K 1/6W CARBON	
	R398	QRD167J-103	10K 1/6W CARBON	
	R399	QRD167J-103	10K 1/6W CARBON	
	R400	QRD167J-103	10K 1/6W CARBON	
	R435	QRD167J-103	10K 1/6W CARBON	
	R436	QRD167J-103	10K 1/6W CARBON	
	R474	QRD167J-222	2.2K 1/6W CARBON	
	R475	QRD167J-103	10K 1/6W CARBON	
	R476	QRD167J-102	1K 1/6W CARBON	
⚠	R480	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
	R481	QRD167J-153	15K 1/6W CARBON	
	R482	QRD167J-183	18K 1/6W CARBON	
	R483	QRD167J-184	180K 1/6W CARBON	
	R484	QRD167J-224	220K 1/6W CARBON	
	R485	QRD167J-683	68K 1/6W CARBON	
	R486	QRD167J-224	220K 1/6W CARBON	
	R487	QRD167J-224	220K 1/6W CARBON	
	R488	QRD167J-105	1M 1/6W CARBON	
	R489	QRD167J-103	10K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R490	QRD167J-103	10K 1/6W CARBON	
	R491	QRD167J-103	10K 1/6W CARBON	
	R492	QRD167J-103	10K 1/6W CARBON	
	R493	QRD167J-103	10K 1/6W CARBON	
	R494	QRD167J-103	10K 1/6W CARBON	
	R495	QRD167J-103	10K 1/6W CARBON	
	R496	QRD167J-103	10K 1/6W CARBON	
	R497	QRD167J-102	1K 1/6W CARBON	
	R498	QRD167J-102	1K 1/6W CARBON	
	R901	QRD167J-104	100K 1/6W CARBON	
	R902	QRD167J-103	10K 1/6W CARBON	
	R903	QRD167J-104	100K 1/6W CARBON	
	R904	QRD167J-473	47K 1/6W CARBON	
	R905	QRD167J-104	100K 1/6W CARBON	
	R906	QRD167J-473	47K 1/6W CARBON	
	R907	QRD167J-473	47K 1/6W CARBON	
	R908	QRD167J-472	4.7K 1/6W CARBON	
	R909	QRD167J-472	4.7K 1/6W CARBON	
	R910	QRD167J-101	100 1/6W CARBON	
	R911	QRD167J-182	1.8K 1/6W CARBON	
	R920	QRD167J-473	47K 1/6W CARBON	
	R921	QRD167J-223	22K 1/6W CARBON	
	R922	QRD167J-472	4.7K 1/6W CARBON	
	R923	QRD167J-103	10K 1/6W CARBON	
	R924	QRD167J-473	47K 1/6W CARBON	
	R925	QRD167J-361	360 1/6W CARBON	
	R926	QRD167J-241	240 1/6W CARBON	
	R927	QRD167J-241	240 1/6W CARBON	
	R928	QRD167J-473	47K 1/6W CARBON	
	R929	QRD167J-473	47K 1/6W CARBON	
	R934	QRD167J-683	68K 1/6W CARBON	
	R935	QRD167J-683	68K 1/6W CARBON	
	R936	QRD167J-103	10K 1/6W CARBON	
	R937	QRD167J-473	47K 1/6W CARBON	
	R938	QRD167J-562	5.6K 1/6W CARBON	
	R939	QRD167J-104	100K 1/6W CARBON	
⚠	R940	QRD14CJ-471S	470 1/4W UNF.CARBON	
	R941	QRD167J-152	1.5K 1/6W CARBON	
	R942	QRD167J-223	22K 1/6W CARBON	
	R943	QRD167J-273	27K 1/6W CARBON	
	R944	QRD167J-223	22K 1/6W CARBON	
	R945	QRD167J-223	22K 1/6W CARBON	
	VR071	QVJB84M-E54B	50K VARIABLE	
	VR072	QVJB84A-E53D	5K VARIABLE	
	VR481	QVPA603-103A	10K VARIABLE	
	VR482	QVPA603-203A	20K VARIABLE	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10239-003	PRINTED BOARD	
	J042	QMS3L40-ED0H	MINI JACK	
	P321	EMV5133-005KR	PLUG ASSY(5PIN)	
	P492	EMV5142-907	PLUG ASSY(7PIN)	
	P493	EMV5142-908	PLUG ASSY(8PIN)	
	P921	EMV5103-002A	PLUG ASSY(2PIN)	
	P949	EMV5103-002B	PLUG ASSY(2PIN)	
	S301	ESP0001-023M	TACT SWITCH(A REW)	
	S302	ESP0001-023M	TACT SWITCH(A FF)	
	S303	ESP0001-023M	TACT SWITCH(A FWD PLAY)	
	S310	ESP0001-023M	TACT SWITCH(B REV PLAY)	
	S311	ESP0001-023M	TACT SWITCH(B REW)	
	S312	ESP0001-023M	TACT SWITCH(B FF)	
	S313	ESP0001-023M	TACT SWITCH(B FWD PLAY)	
	S320	ESP0001-023M	TACT SWITCH(A STOP)	
	S321	ESP0001-023M	TACT SWITCH(B STOP)	
	S322	ESP0001-023M	TACT SWITCH(B REC)	
	S323	ESP0001-023M	TACT SWITCH(B PAUSE)	
	S330	ESP0001-023M	TACT SWITCH(HIGH SPEED DUBB.)	
	S331	ESP0001-023M	TACT SWITCH(DOLBY)	
	S332	ESP0001-023M	TACT SWITCH(REV. MODE)	
	S333	ESP0001-023M	TACT SWITCH(CD REC)	
	S461	ESB1100-007	LEAF SWITCH(FWD REC)	
	S462	ESB1100-007	LEAF SWITCH(B METAL)	
	S463	ESB1100-007	LEAF SWITCH(B PACK)	
	S464	ESB1100-007	LEAF SWITCH(B CrO_2)	
	S465	ESB1100-007	LEAF SWITCH(REV. REC)	
	S466	ESB1100-007	LEAF SWITCH(A CrO_2)	
	S467	ESB1100-007	LEAF SWITCH(A PACK)	
	S921	ESP0001-023M	TACT SWITCH(CSRP)	
	S922	ESP0001-023M	TACT SWITCH(MEMORY)	
	S923	ESP0001-023M	TACT SWITCH(PRESET)	
	S924	ESP0001-023M	TACT SWITCH(SEA ON/OFF)	
	S925	ESP0001-023M	TACT SWITCH(SEA FREQ.UP)	
	S926	ESP0001-023M	TACT SWITCH(SEA FREQ.DOWN)	
	S927	ESP0001-023M	TACT SWITCH(POWER)	
	S928	ESP0001-023M	TACT SWITCH(SOURCE UP)	
	S929	ESP0001-023M	TACT SWITCH(SEA LEVEL UP)	
	S930	ESP0001-023M	TACT SWITCH(SEA LEVEL DOWN)	
	S931	ESP0001-023M	TACT SWITCH(SOURCE DOWN)	

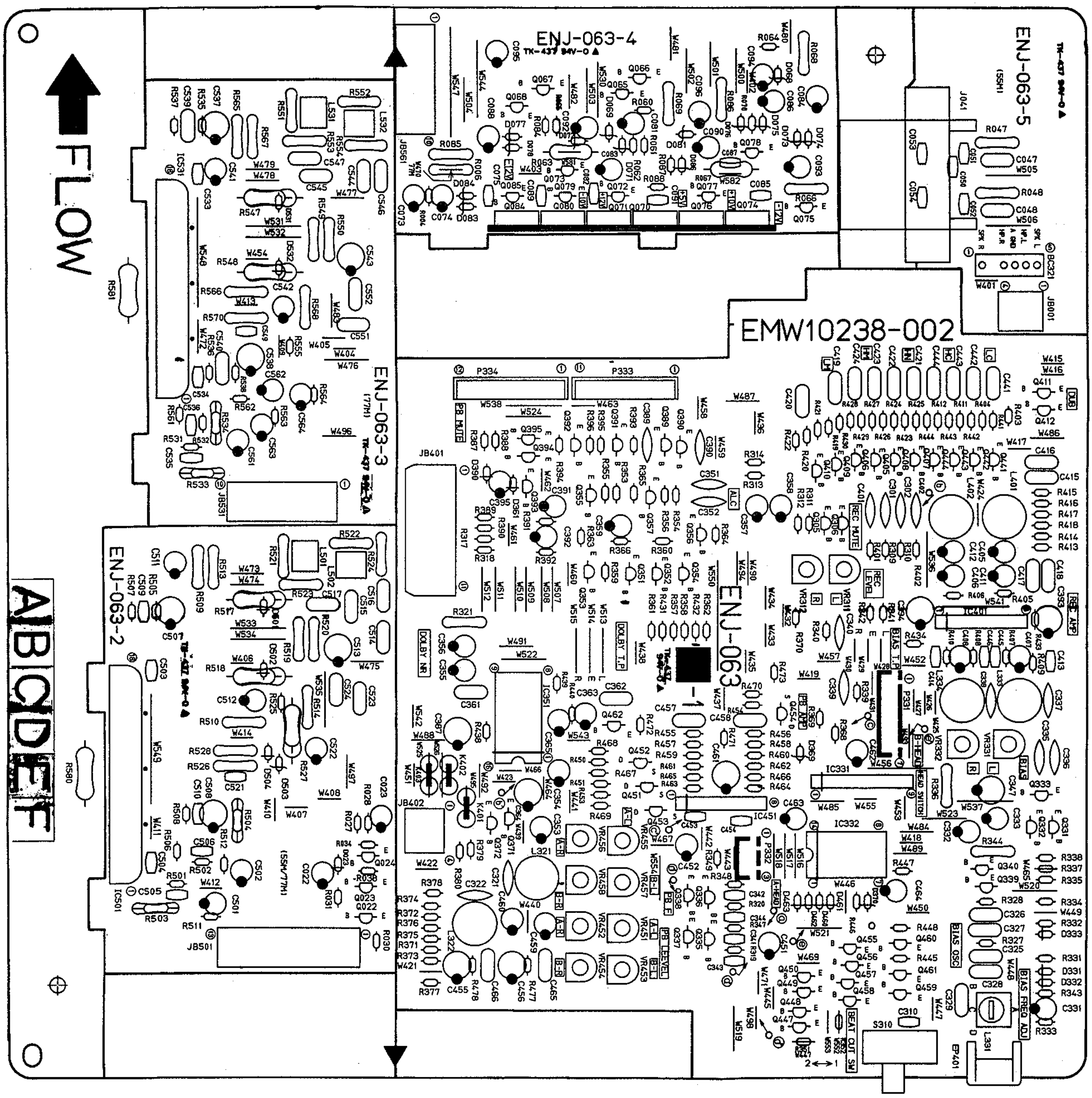
⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	BC333	EWS32B-A912	SOCKET WIRE(11PIN)	
	BC334	EWS32C-A912	SOCKET WIRE(12PIN)	
	BC492	EWS327-A916	SOCKET WIRE(7PIN)	
	BC493	EWS328-A916	SOCKET WIRE(8PIN)	
	BC972	EWS299-0113	SOCKET WIRE(6PIN)	
	BK921	E307969-001	FL HOLDER	
	FL921	ELU0001-092	FL TUBE	
	FS921	E306805-014	FELT SPACER	
	FW481	EWR36B-13LST	FLAT WIRE(6PIN)	
	FW495	EWR34B-08LST	FLAT WIRE(4PIN)	
	FW496	EWR38B-08LST	FLAT WIRE(8PIN)	
	FW497	EWR37B-10LST	FLAT WIRE(7PIN)	
	FW498	EWR37B-10LST	FLAT WIRE(7PIN)	
	FW512	EWR33B-10SST	FLAT WIRE(3PIN)	
	FW901	EWR37B-08SST	FLAT WIRE(7PIN)	
	FW902	EWR37B-08SST	FLAT WIRE(7PIN)	
	FW903	EWR39B-08SST	FLAT WIRE(9PIN)	
	FW904	EWR39B-08SST	FLAT WIRE(9PIN)	
	FW905	EWR36B-08SST	FLAT WIRE(6PIN)	
	JB901	EMV7123-025	CONNECTOR(25PIN)	
	JT481	EMV7122-103	CONNECTOR(3PIN)	
	JT482	EMV7122-103	CONNECTOR(3PIN)	
	XT491	ECX0004-194KM	RESONATOR	
	XT901	ECX0060-000EM	RESONATOR	

⚠ : SAFETY PARTS

■ENJ-063 A Cassette Deck Control & Power Amplifier PC Board Ass'y


FLOW
ENJ-063-4
ENJ-063-5
ENJ-063-3
ENJ-063-2
ENJ-063-1
EMW10238-002
ABCDEF
P334
P333
JB401
JB402
JB501
JB531
JB561
JB001
IC501
IC531
IC331
IC332
IC351
IC401
IC451
REC AMP
REC MUTE
REC LEVEL
DOLBY NR
PB MUTE
BIAS OSC
BIAS FREQ ADJ
BEAT CUT SW
HEAD SWITCH
DUB
ALC
S310
EP401

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q022	2SC1740S(R,S)	SILICON ROHM	
	Q023	2SC1740S(R,S)	SILICON ROHM	
	Q024	2SA733A(P,Q)	SILICON NEC	
	Q065	DTC144ES	SILICON ROHM	
	Q066	DTA114YS	SILICON ROHM	
	Q067	DTA144ES	SILICON ROHM	
	Q068	DTC114YS	SILICON ROHM	
	Q070	2SD2061(E,F)	SILICON ROHM	
	Q071	2SD2061(E,F)	SILICON ROHM	
	Q072	2SC1740S(R,S)	SILICON ROHM	
	Q073	2SC1740S(R,S)	SILICON ROHM	
	Q074	2SB1187(E,F)	SILICON ROHM	
	Q075	2SA564A(Q,R)	SILICON MATSUSHITA	
	Q076	2SD2061(E,F)	SILICON ROHM	
	Q077	2SC1740S(R,S)	SILICON ROHM	

⚠ : SAFETY PARTS

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q078	2SC1740S(R,S)	SILICON ROHM	
	Q079	2SA564A(Q,R)	SILICON MATSUSHITA	
	Q080	2SB1187(E,F)	SILICON ROHM	
	Q305	2SD2144S(VW)	SILICON ROHM	
	Q306	2SD2144S(VW)	SILICON ROHM	
	Q331	2SC1741A(Q,R)	SILICON ROHM	
	Q332	2SC1740S(R,S)	SILICON ROHM	
	Q333	2SC1741A(Q,R)	SILICON ROHM	
	Q335	DTC144ES	SILICON ROHM	
	Q336	DTC144ES	SILICON ROHM	
	Q337	DTC144ES	SILICON ROHM	
	Q338	DTC144ES	SILICON ROHM	
	Q339	2SC1740S(R,S)	SILICON ROHM	
	Q340	2SC1740S(R,S)	SILICON ROHM	
	Q351	2SC1740S(R,S)	SILICON ROHM	

⚠ : SAFETY PARTS

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q352	2SC1740S(R,S)	SILICON ROHM	
	Q353	2SC1740S(R,S)	SILICON ROHM	
	Q354	2SC1740S(R,S)	SILICON ROHM	
	Q355	2SC1740S(R,S)	SILICON ROHM	
	Q356	2SC1740S(R,S)	SILICON ROHM	
	Q357	2SC1740S(R,S)	SILICON ROHM	
	Q371	2SD2144S(VW)	SILICON ROHM	
	Q372	2SD2144S(VW)	SILICON ROHM	
	Q389	DTC144ES	SILICON ROHM	
	Q390	DTC144ES	SILICON ROHM	
	Q391	2SD2144S(VW)	SILICON ROHM	
	Q392	2SD2144S(VW)	SILICON ROHM	
	Q393	DTA144ES	SILICON ROHM	
	Q394	DTC144ES	SILICON ROHM	
	Q395	DTA144ES	SILICON ROHM	
	Q405	DTC144TS	SILICON ROHM	
	Q406	DTC144TS	SILICON ROHM	
	Q407	DTC144TS	SILICON ROHM	
	Q408	DTC144TS	SILICON ROHM	
	Q409	DTC144TS	SILICON ROHM	
	Q410	DTC144TS	SILICON ROHM	
	Q411	DTC144TS	SILICON ROHM	
	Q412	DTC144TS	SILICON ROHM	
	Q441	DTC144TS	SILICON ROHM	
	Q442	DTC144TS	SILICON ROHM	
	Q443	DTC144TS	SILICON ROHM	
	Q444	DTC144TS	SILICON ROHM	
	Q447	DTC114YS	SILICON ROHM	
	Q448	DTC114YS	SILICON ROHM	
	Q449	DTC114YS	SILICON ROHM	
	Q450	DTC114YS	SILICON ROHM	
	Q451	2SK301(Q,R)	F.E.T MATSUSHITA	
	Q452	2SK301(Q,R)	F.E.T MATSUSHITA	
	Q453	2SK301(Q,R)	F.E.T MATSUSHITA	
	Q454	2SK301(Q,R)	F.E.T MATSUSHITA	
	Q455	DTC114YS	SILICON ROHM	
	Q456	DTC114YS	SILICON ROHM	
	Q457	DTC114YS	SILICON ROHM	
	Q458	DTC114YS	SILICON ROHM	
	Q459	DTC114YS	SILICON ROHM	
	Q460	2SA933S(R,S)	SILICON ROHM	
	Q461	DTA114YS	SILICON ROHM	
	Q462	DTC144ES	SILICON ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC331	UPC1330HA	I.C. NEC	
	IC332	BU4066B	I.C. ROHM	
	IC351	HA12136A	I.C. HITACHI	
	IC401	BA15218N	I.C. ROHM	
	IC451	UPC1228HA	I.C. NEC	
	IC501	STK4141MK5	I.C. SANYO	
	IC531	STK4141MK5	I.C. SANYO	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D023	1SS133	SILICON ROHM	
	D071	RD13JSB3	ZENER NEC	
	D072	MTZ13JC	ZENER ROHM	
	D073	MTZ13JC	ZENER ROHM	
	D074	RD13JSB3	ZENER NEC	
	D075	MTZ11JC	ZENER ROHM	
	D076	MTZ12JC	ZENER ROHM	
	D077	MTZ11JC	ZENER ROHM	
	D078	MTZ12JC	ZENER ROHM	
	D081	MTZ6.8JC	ZENER ROHM	
	D086	MTZ6.2JC	ZENER ROHM	
	D331	1SS133	SILICON ROHM	
	D332	1SS133	SILICON ROHM	
	D333	1SS133	SILICON ROHM	
	D361	1SS133	SILICON ROHM	
	D369	MTZ7.5JC	ZENER ROHM	
	D370	MTZ7.5JC	ZENER ROHM	
	D390	1SS133	SILICON ROHM	
	D460	1SS133	SILICON ROHM	
	D461	1SS133	SILICON ROHM	
	D462	1SS133	SILICON ROHM	
	D463	1SS133	SILICON ROHM	
	D501	1SS133	SILICON ROHM	
	D502	1SS133	SILICON ROHM	
	D503	MTZ12JC	ZENER ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D504	1SS133	SILICON ROHM	
	D531	1SS133	SILICON ROHM	
	D532	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C022	QETB1CM-226	22MF 16V ELECTRO	
	C023	QETB1AM-476	47MF 10V ELECTRO	
	C081	QETB1EM-226	22MF 25V ELECTRO	
	C082	QCVB1CM-103	0.01MF 16V CERAMIC	
	C083	QETB1EM-226	22MF 25V ELECTRO	
	C084	QETB1EM-226	22MF 25V ELECTRO	
	C085	QCVB1CM-103	0.01MF 16V CERAMIC	
	C086	QETB1EM-226	22MF 25V ELECTRO	
	C087	QCVB1CM-103	0.01MF 16V CERAMIC	
	C088	QETB1EM-226	22MF 25V ELECTRO	
	C089	QCVB1CM-103	0.01MF 16V CERAMIC	
	C090	QETB1EM-226	22MF 25V ELECTRO	
	C091	QCVB1CM-103	0.01MF 16V CERAMIC	
	C092	QETB1EM-226	22MF 25V ELECTRO	
	C093	QETB1EM-226	22MF 25V ELECTRO	
	C094	QETB1EM-226	22MF 25V ELECTRO	
	C095	QETB1EM-226	22MF 25V ELECTRO	
	C096	QETB1EM-226	22MF 25V ELECTRO	
	C301	QCY21HK-122	1200PF 50V CERAMIC	
	C302	QCY21HK-122	1200PF 50V CERAMIC	
	C310	QCBB1HK-471	470PF 50V CERAMIC	
	C321	QCY21HK-101	100PF 50V CERAMIC	
	C322	QCY21HK-101	100PF 50V CERAMIC	
	C325	QFLB1HJ-332	3300PF 50V MYLAR	
	C326	QFLB1HJ-332	3300PF 50V MYLAR	
	C327	QFLB1HJ-682	6800PF 50V MYLAR	
	C328	QFLB1HJ-153	0.015MF 50V MYLAR	
	C329	QFP81HG-562	5600PF 50V POLY	
	C331	QETB1HM-105	1MF 50V ELECTRO	
	C332	QETB1HM-105	1MF 50V ELECTRO	
	C333	QETB1EM-106	10MF 25V ELECTRO	
	C335	QCS21HJ-101	100PF 50V CERAMIC	
	C336	QCS21HJ-101	100PF 50V CERAMIC	
	C337	QCS21HJ-101	100PF 50V CERAMIC	
	C338	QCS21HJ-101	100PF 50V CERAMIC	
	C339	QCY21HK-122	1200PF 50V CERAMIC	
	C340	QCY21HK-122	1200PF 50V CERAMIC	
	C341	QCBB1HK-331	330PF 50V CERAMIC	
	C342	QCBB1HK-331	330PF 50V CERAMIC	
	C343	QCXB1CM-122	1200PF 16V CERAMIC	
	C344	QCXB1CM-122	1200PF 16V CERAMIC	
	C347	QETB1CM-107	100MF 16V ELECTRO	
	C351	QCF21HP-473	0.047MF 50V CERAMIC	
	C352	QCF21HP-473	0.047MF 50V CERAMIC	
	C353	QETB1HM-105	1MF 50V ELECTRO	
	C354	QETB1HM-105	1MF 50V ELECTRO	
	C355	QETB1HM-105	1MF 50V ELECTRO	
	C356	QETB1HM-105	1MF 50V ELECTRO	
	C357	QETB1EM-106	10MF 25V ELECTRO	
	C358	QETB1EM-106	10MF 25V ELECTRO	
	C359	QETB1EM-106	10MF 25V ELECTRO	
	C361	QFLB1HJ-224	0.22MF 50V MYLAR	
	C362	QFLB1HJ-224	0.22MF 50V MYLAR	
	C363	QETB1HM-475	4.7MF 50V ELECTRO	
	C364	QETB1CM-107	100MF 16V ELECTRO	
	C365	QETB1HM-475	4.7MF 50V ELECTRO	
	C387	QETB1CM-107	100MF 16V ELECTRO	
	C389	QCF21HP-223	0.022MF 50V CERAMIC	
	C390	QCF21HP-223	0.022MF 50V CERAMIC	
	C391	QETB1EM-106	10MF 25V ELECTRO	
	C392	QETB1EM-106	10MF 25V ELECTRO	
	C393	QETB1CM-107	100MF 16V ELECTRO	
	C394	QETB1CM-107	100MF 16V ELECTRO	
	C395	QETB1CM-476	47MF 16V ELECTRO	
	C401	QCF21HP-473	0.047MF 50V CERAMIC	
	C402	QCF21HP-473	0.047MF 50V CERAMIC	
	C405	QETB1HM-225	2.2MF 50V ELECTRO	
	C406	QETB1HM-225	2.2MF 50V ELECTRO	
	C407	QETB1HM-225	2.2MF 50V ELECTRO	
	C408	QETB1HM-225	2.2MF 50V ELECTRO	
	C411	QETB1EM-106	10MF 25V ELECTRO	
	C412	QETB1EM-106	10MF 25V ELECTRO	
	C413	QCBB1HK-271	270PF 50V CERAMIC	
	C414	QCBB1HK-271	270PF 50V CERAMIC	
	C415	QFLB1HJ-822	8200PF 50V MYLAR	
	C416	QFLB1HJ-822	8200PF 50V MYLAR	
	C417	QFLB1HJ-562	5600PF 50V MYLAR	
	C418	QFLB1HJ-562	5600PF 50V MYLAR	
	C419	QFLB1HJ-153	0.015MF 50V MYLAR	
	C420	QFLB1HJ-153	0.015MF 50V MYLAR	
	C421	QFLB1HJ-822	8200PF 50V MYLAR	
	C422	QFLB1HJ-822	8200PF 50V MYLAR	
	C423	QFLB1HJ-153	0.015MF 50V MYLAR	
	C424	QFLB1HJ-153	0.015MF 50V MYLAR	
	C441	QFLB1HJ-822	8200PF 50V MYLAR	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C442	QFLB1HJ-822	8200PF 50V MYLAR	
	C443	QFLB1HJ-123	0.012MF 50V MYLAR	
	C444	QFLB1HJ-123	0.012MF 50V MYLAR	
	C445	QCSB1HJ-470	47PF 50V CERAMIC	
	C446	QCSB1HJ-470	47PF 50V CERAMIC	
	C451	QETB1HM-225	2.2MF 50V ELECTRO	
	C452	QETB1HM-225	2.2MF 50V ELECTRO	
	C453	QCBB1HK-101	100PF 50V CERAMIC	
	C454	QCBB1HK-101	100PF 50V CERAMIC	
	C455	QETB1AM-107	100MF 10V ELECTRO	
	C456	QETB1AM-107	100MF 10V ELECTRO	
	C457	QFLB1HJ-822	8200PF 50V MYLAR	
	C458	QFLB1HJ-822	8200PF 50V MYLAR	
	C459	QETB1HM-105	1MF 50V ELECTRO	
	C460	QETB1HM-105	1MF 50V ELECTRO	
	C461	QETB1CM-107	100MF 16V ELECTRO	
	C462	QETB1CM-226	22MF 16V ELECTRO	
	C463	QETB1HM-106	10MF 50V ELECTRO	
	C464	QETB1HM-106	10MF 50V ELECTRO	
	C465	QFLB1HJ-153	0.015MF 50V MYLAR	
	C466	QFLB1HJ-153	0.015MF 50V MYLAR	
	C501	EEZ5009-106	10MF ELECTRO	
	C502	EEZ5009-106	10MF ELECTRO	
	C503	QCBB1HK-101	100PF 50V CERAMIC	
	C504	QCBB1HK-101	100PF 50V CERAMIC	
	C505	QCBB1HK-101	100PF 50V CERAMIC	
	C506	QCBB1HK-101	100PF 50V CERAMIC	
	C507	QETB1HM-107	100MF 50V ELECTRO	
	C508	QETB1HM-107	100MF 50V ELECTRO	
	C509	QCT30CH-5R6	5.6PF 50V CERAMIC	
	C510	QCT30CH-5R6	5.6PF 50V CERAMIC	
	C511	QETB1HM-226	22MF 50V ELECTRO	
	C512	QETB1HM-226	22MF 50V ELECTRO	
	C513	QETB1HM-476	47MF 50V ELECTRO	
	C514	QFLB1HJ-104	0.1MF 50V MYLAR	
	C515	QFLB1HJ-104	0.1MF 50V MYLAR	
	C516	QFLB1HJ-104	0.1MF 50V MYLAR	
	C517	QFLB1HJ-104	0.1MF 50V MYLAR	
	C522	QETB1CM-226	22MF 16V ELECTRO	
	C523	QFLB1HJ-473	0.047MF 50V MYLAR	
	C524	QFLB1HJ-473	0.047MF 50V MYLAR	
	C533	QCBB1HK-101	100PF 50V CERAMIC	
	C534	QCBB1HK-101	100PF 50V CERAMIC	
	C535	QCXB1CM-392	3900PF 16V CERAMIC	
	C536	QCXB1CM-392	3900PF 16V CERAMIC	
	C537	QETB1HM-225	2.2MF 50V ELECTRO	
	C538	QETB1HM-225	2.2MF 50V ELECTRO	
	C539	QFLB1HJ-333	0.033MF 50V MYLAR	
	C540	QFLB1HJ-333	0.033MF 50V MYLAR	
	C541	QETB1HM-226	22MF 50V ELECTRO	
	C542	QETB1HM-226	22MF 50V ELECTRO	
	C543	QETB1HM-476	47MF 50V ELECTRO	
	C544	QFLB1HJ-104	0.1MF 50V MYLAR	
	C545	QFLB1HJ-104	0.1MF 50V MYLAR	
	C546	QFLB1HJ-104	0.1MF 50V MYLAR	
	C547	QFLB1HJ-104	0.1MF 50V MYLAR	
	C549	QCBB1HK-681	680PF 50V CERAMIC	
	C551	QFLB1HJ-473	0.047MF 50V MYLAR	
	C552	QFLB1HJ-473	0.047MF 50V MYLAR	
	C561	QETB1HM-474	0.47MF 50V ELECTRO	
	C562	QETB1HM-474	0.47MF 50V ELECTRO	
	C563	QETB1HM-474	0.47MF 50V ELECTRO	
	C564	QETB1HM-474	0.47MF 50V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R027	QRD167J-104	100K 1/6W CARBON	
	R028	QRD167J-823	82K 1/6W CARBON	
	R030	QRD167J-473	47K 1/6W CARBON	
	R031	QRD167J-103	10K 1/6W CARBON	
	R034	QRD167J-104	100K 1/6W CARBON	
	R038	QRD167J-104	100K 1/6W CARBON	
	R060	QRD167J-103	10K 1/6W CARBON	
	R061	QRD167J-152	1.5K 1/6W CARBON	
	R062	QRD167J-471	470 1/6W CARBON	
⚠	R063	QRX012J-R68AM	0.68 1W M.FILM	
	R064	QRD167J-222	2.2K 1/6W CARBON	
	R065	QRD167J-103	10K 1/6W CARBON	
⚠	R066	QRD14CJ-2R7S	2.7 1/4W UNF.CARBON	
⚠	R067	QRX012J-R47AM	0.47 1W M.FILM	
⚠	R068	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
⚠	R069	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
	R070	QRD167J-332	3.3K 1/6W CARBON	
	R084	QRD167J-332	3.3K 1/6W CARBON	
⚠	R085	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
⚠	R086	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R087	QRD167J-103	10K 1/6W CARBON	
	R088	QRD167J-103	10K 1/6W CARBON	
	R309	QRD167J-473	47K 1/6W CARBON	
	R310	QRD167J-473	47K 1/6W CARBON	
	R311	QRD167J-103	10K 1/6W CARBON	
	R312	QRD167J-103	10K 1/6W CARBON	
	R313	QRD167J-153	15K 1/6W CARBON	
	R314	QRD167J-153	15K 1/6W CARBON	
	R317	QRD167J-203	20K 1/6W CARBON	
	R318	QRD167J-203	20K 1/6W CARBON	
	R319	QRD167J-683	68K 1/6W CARBON	
	R320	QRD167J-683	68K 1/6W CARBON	
⚠	R321	QRZ0077-220	22 1/4W FUSIBLE	
	R327	QRD167J-393	39K 1/6W CARBON	
	R328	QRD167J-393	39K 1/6W CARBON	
	R331	QRD167J-332	3.3K 1/6W CARBON	
	R332	QRD167J-332	3.3K 1/6W CARBON	
	R333	QRD167J-104	100K 1/6W CARBON	
	R334	QRD167J-561	560 1/6W CARBON	
	R335	QRD167J-821	820 1/6W CARBON	
⚠	R336	QRZ0077-100	10 1/4W FUSIBLE	
	R337	QRD167J-471	470 1/6W CARBON	
	R338	QRD167J-561	560 1/6W CARBON	
	R339	QRD167J-623	62K 1/6W CARBON	
	R340	QRD167J-623	62K 1/6W CARBON	
	R341	QRD167J-100	10 1/6W CARBON	
	R342	QRD167J-100	10 1/6W CARBON	
	R343	QRD167J-222	2.2K 1/6W CARBON	
⚠	R344	QRD14CJ-6R8S	6.8 1/4W UNF.CARBON	
	R347	QRD167J-224	220K 1/6W CARBON	
	R348	QRD167J-224	220K 1/6W CARBON	
	R349	QRD167J-223	22K 1/6W CARBON	
	R351	QRD167J-102	1K 1/6W CARBON	
	R352	QRD167J-102	1K 1/6W CARBON	
	R353	QRD167J-153	15K 1/6W CARBON	
	R354	QRD167J-153	15K 1/6W CARBON	
	R355	QRD167J-243	24K 1/6W CARBON	
	R356	QRD167J-243	24K 1/6W CARBON	
	R357	QRD167J-332	3.3K 1/6W CARBON	
	R358	QRD167J-332	3.3K 1/6W CARBON	
	R359	QRD167J-223	22K 1/6W CARBON	
	R360	QRD167J-223	22K 1/6W CARBON	
	R361	QRD167J-561	560 1/6W CARBON	
	R362	QRD167J-561	560 1/6W CARBON	
	R363	QRD167J-222	2.2K 1/6W CARBON	
	R364	QRD167J-222	2.2K 1/6W CARBON	
	R365	QRD167J-103	10K 1/6W CARBON	
	R366	QRD167J-105	1M 1/6W CARBON	
	R368	QRD167J-271	270 1/6W CARBON	
	R369	QRD167J-102	1K 1/6W CARBON	
	R370	QRD167J-102	1K 1/6W CARBON	
	R371	QRD167J-562	5.6K 1/6W CARBON	
	R372	QRD167J-562	5.6K 1/6W CARBON	
	R373	QRD167J-103	10K 1/6W CARBON	
	R374	QRD167J-103	10K 1/6W CARBON	
	R375	QRD167J-473	47K 1/6W CARBON	
	R376	QRD167J-473	47K 1/6W CARBON	
	R377	QRD167J-103	10K 1/6W CARBON	
	R378	QRD167J-103	10K 1/6W CARBON	
	R379	QRD167J-103	10K 1/6W CARBON	
	R380	QRD167J-103	10K 1/6W CARBON	
	R387	QRD167J-103	10K 1/6W CARBON	
	R388	QRD167J-102	1K 1/6W CARBON	
	R389	QRD167J-221	220 1/6W CARBON	
	R390	QRD167J-221	220 1/6W CARBON	
	R391	QRD167J-822	8.2K 1/6W CARBON	
	R392	QRD167J-822	8.2K 1/6W CARBON	
	R393	QRD167J-562	5.6K 1/6W CARBON	
	R394	QRD167J-562	5.6K 1/6W CARBON	
	R395	QRD167J-103	10K 1/6W CARBON	
	R396	QRD167J-103	10K 1/6W CARBON	
	R401	QRD167J-303	30K 1/6W CARBON	
	R402	QRD167J-303	30K 1/6W CARBON	
	R403	QRD167J-332	3.3K 1/6W CARBON	
	R404	QRD167J-332	3.3K 1/6W CARBON	
	R405	QRD167J-683	68K 1/6W CARBON	
	R406	QRD167J-683	68K 1/6W CARBON	
	R407	QRD167J-153	15K 1/6W CARBON	
	R408	QRD167J-153	15K 1/6W CARBON	
	R409	QRD167J-153	15K 1/6W CARBON	
	R410	QRD167J-153	15K 1/6W CARBON	
	R411	QRD167J-152	1.5K 1/6W CARBON	
	R412	QRD167J-152	1.5K 1/6W CARBON	
	R413	QRD167J-182	1.8K 1/6W CARBON	
	R414	QRD167J-182	1.8K 1/6W CARBON	
	R415	QRD167J-161	160 1/6W CARBON	
	R416	QRD167J-161	160 1/6W CARBON	
	R417	QRD167J-221	220 1/6W CARBON	
	R418	QRD167J-221	220 1/6W CARBON	
	R419	QRD167J-162	1.6K 1/6W CARBON	
	R420	QRD167J-162	1.6K 1/6W CARBON	
	R421	QRD167J-182	1.8K 1/6W CARBON	
	R422	QRD167J-182	1.8K 1/6W CARBON	
	R423	QRD167J-102	1K 1/6W CARBON	
	R424	QRD167J-102	1K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R425	QRD167J-682	6.8K 1/6W CARBON	
	R426	QRD167J-682	6.8K 1/6W CARBON	
	R427	QRD167J-911	910 1/6W CARBON	
	R428	QRD167J-911	910 1/6W CARBON	
	R429	QRD167J-102	1K 1/6W CARBON	
	R430	QRD167J-102	1K 1/6W CARBON	
	R431	QRD167J-394	390K 1/6W CARBON	
	R432	QRD167J-394	390K 1/6W CARBON	
	R433	QRD167J-221	220 1/6W CARBON	
	R434	QRD167J-221	220 1/6W CARBON	
	R438	QRD167J-183	18K 1/6W CARBON	
	R439	QRD167J-103	10K 1/6W CARBON	
	R440	QRD167J-223	22K 1/6W CARBON	
	R441	QRD167J-102	1K 1/6W CARBON	
	R442	QRD167J-102	1K 1/6W CARBON	
	R443	QRD167J-102	1K 1/6W CARBON	
	R444	QRD167J-102	1K 1/6W CARBON	
	R445	QRD167J-224	220K 1/6W CARBON	
	R446	QRD167J-103	10K 1/6W CARBON	
	R447	QRD167J-103	10K 1/6W CARBON	
	R448	QRD167J-223	22K 1/6W CARBON	
	R450	QRD167J-102	1K 1/6W CARBON	
	R451	QRD167J-102	1K 1/6W CARBON	
	R453	QRD167J-470	47 1/6W CARBON	
	R454	QRD167J-470	47 1/6W CARBON	
	R455	QRD167J-334	330K 1/6W CARBON	
	R456	QRD167J-334	330K 1/6W CARBON	
	R457	QRD167J-432	4.3K 1/6W CARBON	
	R458	QRD167J-432	4.3K 1/6W CARBON	
	R459	QRD167J-302	3K 1/6W CARBON	
	R460	QRD167J-302	3K 1/6W CARBON	
	R461	QRD167J-562	5.6K 1/6W CARBON	
	R462	QRD167J-562	5.6K 1/6W CARBON	
	R463	QRD167J-752	7.5K 1/6W CARBON	
	R464	QRD167J-752	7.5K 1/6W CARBON	
	R465	QRD167J-223	22K 1/6W CARBON	
	R466	QRD167J-223	22K 1/6W CARBON	
	R467	QRD167J-105	1M 1/6W CARBON	
	R468	QRD167J-105	1M 1/6W CARBON	
	R469	QRD167J-105	1M 1/6W CARBON	
	R470	QRD167J-105	1M 1/6W CARBON	
	R471	QRD167J-471	470 1/6W CARBON	
	R472	QRD167J-472	4.7K 1/6W CARBON	
	R473	QRD167J-472	4.7K 1/6W CARBON	
	R477	QRD167J-223	22K 1/6W CARBON	
	R478	QRD167J-223	22K 1/6W CARBON	
	R501	QRD167J-104	100K 1/6W CARBON	
	R502	QRD167J-104	100K 1/6W CARBON	
⚠	R503	QRD14CJ-102S	1K 1/4W UNF.CARBON	
⚠	R504	QRD14CJ-102S	1K 1/4W UNF.CARBON	
	R505	QRD167J-471	470 1/6W CARBON	
	R506	QRD167J-471	470 1/6W CARBON	
	R507	QRD167J-104	100K 1/6W CARBON	
	R508	QRD167J-104	100K 1/6W CARBON	
⚠	R509	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
⚠	R510	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
	R511	QRD167J-102	1K 1/6W CARBON	
	R512	QRD167J-102	1K 1/6W CARBON	
⚠	R513	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
⚠	R514	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
⚠	R517	QRX012J-R22AM	0.22 1W M.FILM	
⚠	R518	QRX012J-R22AM	0.22 1W M.FILM	
⚠	R519	QRD14CJ-101S	100 1/4W UNF.CARBON	
⚠	R520	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R521	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R522	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R523	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R524	QRD14CJ-100S	10 1/4W UNF.CARBON	
	R525	QRD167J-153	15K 1/6W CARBON	
⚠	R526	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R527	QRG022J-122AM	1.2K 2W O.M.FILM	
⚠	R528	QRZ0077-100	10 1/4W FUSIBLE	
	R531	QRD167J-104	100K 1/6W CARBON	
	R532	QRD167J-104	100K 1/6W CARBON	
⚠	R533	QRD14CJ-681S	680 1/4W UNF.CARBON	
⚠	R534	QRD14CJ-681S	680 1/4W UNF.CARBON	
	R535	QRD167J-473	47K 1/6W CARBON	
	R536	QRD167J-473	47K 1/6W CARBON	
	R537	QRD167J-473	47K 1/6W CARBON	
	R538	QRD167J-473	47K 1/6W CARBON	
⚠	R547	QRX012J-R22AM	0.22 1W M.FILM	
⚠	R548	QRX012J-R22AM	0.22 1W M.FILM	
⚠	R549	QRD14CJ-101S	100 1/4W UNF.CARBON	
⚠	R550	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R551	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R552	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R553	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R554	QRD14CJ-100S	10 1/4W UNF.CARBON	
	R555	QRD167J-103	10K 1/6W CARBON	
	R561	QRD167J-102	1K 1/6W CARBON	
	R562	QRD167J-102	1K 1/6W CARBON	
	R563	QRD167J-272	2.7K 1/6W CARBON	
	R564	QRD167J-272	2.7K 1/6W CARBON	
⚠	R565	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
⚠	R566	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	R567	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
⚠	R568	QRD14CJ-272S	2.7K 1/4W UNF.CARBON	
⚠	R570	QRD14CJ-100S	10 1/4W UNF.CARBON	
⚠	R580	QRG022J-122AM	1.2K 2W O.M.FILM	
⚠	R581	QRG022J-122AM	1.2K 2W O.M.FILM	
	VR311	QVPA601-503A	50K VARIABLE	
	VR312	QVPA601-503A	50K VARIABLE	
	VR331	QVPA601-503A	50K VARIABLE	
	VR332	QVPA601-503A	50K VARIABLE	
	VR451	QVPA601-201A	200 VARIABLE	
	VR452	QVPA601-201A	200 VARIABLE	
	VR453	QVPA601-201A	200 VARIABLE	
	VR454	QVPA601-201A	200 VARIABLE	
	VR455	QVPA601-203A	20K VARIABLE	
	VR456	QVPA601-203A	20K VARIABLE	
	VR457	QVPA601-203A	20K VARIABLE	
	VR458	QVPA601-203A	20K VARIABLE	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10238-003	PRINTED BOARD	
	L321	EQL2106-223	INDUCTOR	
	L322	EQL2106-223	INDUCTOR	
	L331	ENZ6002-012	OSCILLATOR COIL	
	L333	EQL2106-223	INDUCTOR	
	L334	EQL2106-223	INDUCTOR	
	L401	EQL2106-562	INDUCTOR	
	L402	EQL2106-562	INDUCTOR	
	L501	EQL0001-R45	INDUCTOR	
	L502	EQL0001-R45	INDUCTOR	
	L531	EQL0001-R45	INDUCTOR	
	L532	EQL0001-R45	INDUCTOR	
	P331	QMV5011-007K	PLUG ASSY(7PIN)	
	P332	QMV5011-003K	PLUG ASSY(3PIN)	
	P333	EMV5142-911	PLUG ASSY(11PIN)	
	P334	EMV5142-912	PLUG ASSY(12PIN)	
	S310	QSS6A12-E01	SLIDE SWITCH(BEAT CUT)	
	EP401	E70225-002	EARTH PLATE	
	JB401	EMV7140-L11R	CONNECTOR(11PIN)	
	JB402	EMV7125-004R	CONNECTOR(4PIN)	
	JB501	EMV7125-013R	CONNECTOR(13PIN)	
	JB531	EMV7125-010R	CONNECTOR(10PIN)	
	JB561	EMV7125-010R	CONNECTOR(10PIN)	

⚠ : SAFETY PARTS

—MEMO—

JVC-03265

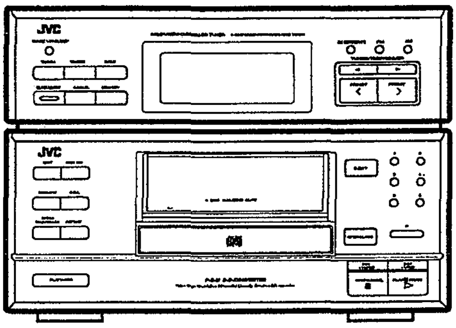
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

CA-MX77MTN

(UNIT NO. XT-MX77MTN)



* *For instruction manual, please refer to the CA-MX77MTN (S.M.NO.20334).*
* *DX-MX77MTN is needed (for power supply etc.) when servicing.*

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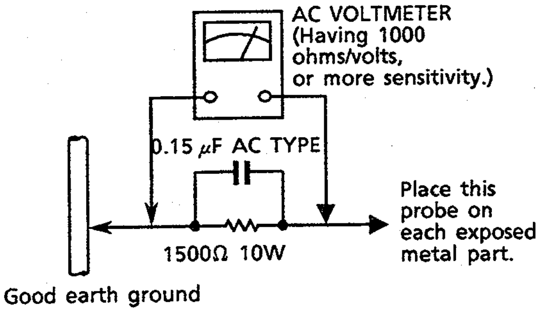
Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularily any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor.
     Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.).
     This corresponds to 0.5 mA AC (r.m.s.).


AC VOLTMETER
(Having 1000 ohms/volts, or more sensitivity.)
0.15 μF AC TYPE
1500Ω 10W
Place this probe on each exposed metal part.
Good earth ground

Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. **DANGER :** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION :** There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. **CAUTION :** The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. **CAUTION :** If safety switches malfunction, the laser is able to function.
6. **CAUTION :** Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
7. **CAUTION :** The compact disc player provides a laser diode of wavelength 780-790nm and optical output power typical 3mW at the laser diode.

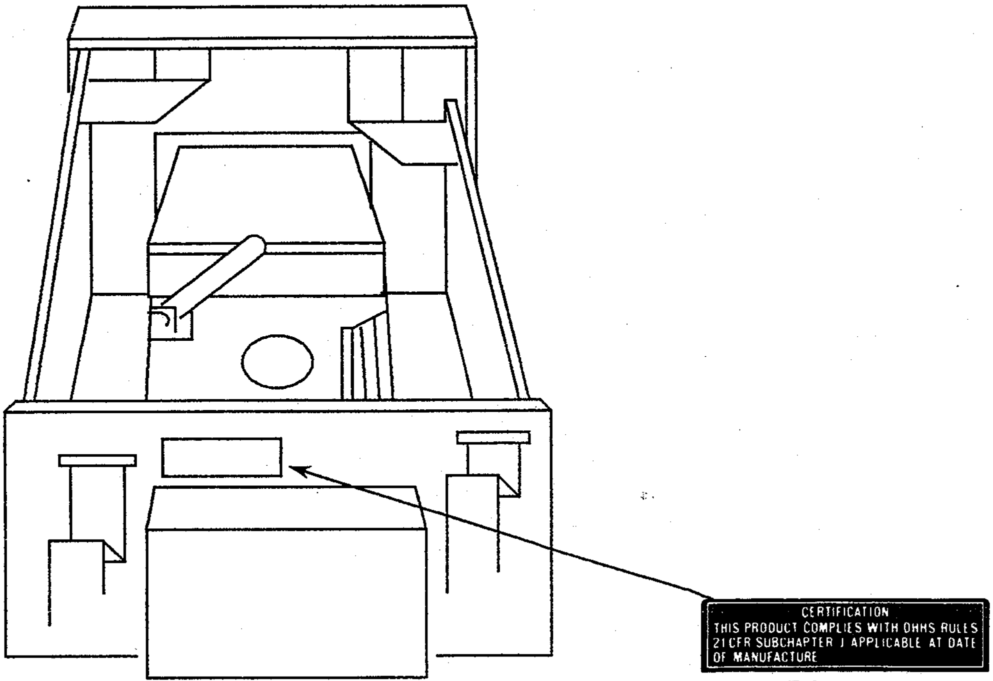
VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

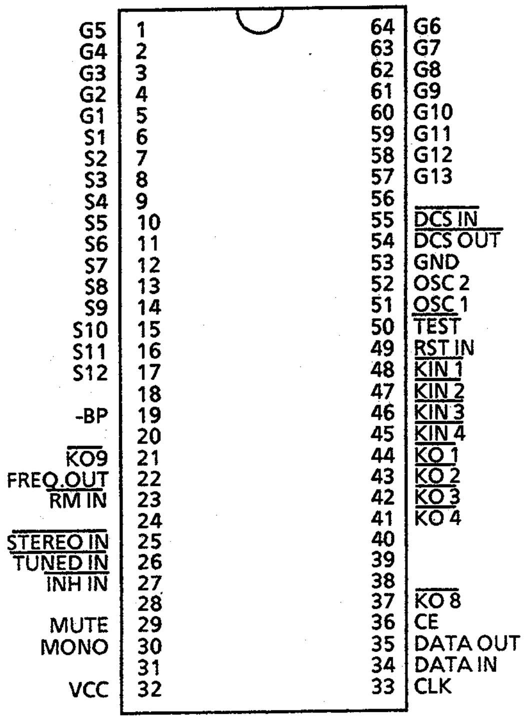

CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES
21 CFR SUBCHAPTER J APPLICABLE AT DATE
OF MANUFACTURE

CERTIFICATION LABEL BY DHHS
(Only for the U.S.A.)

Description of Major LSIs

■ HD614089SC91 (IC201) : Tuner Control & FL Driver

(1) Terminal Layout


G5 1
G4 2
G3 3
G2 4
G1 5
S1 6
S2 7
S3 8
S4 9
S5 10
S6 11
S7 12
S8 13
S9 14
S10 15
S11 16
S12 17
18
-BP 19
20
KO9 21
FREQ.OUT 22
RM IN 23
24
STEREO IN 25
TUNED IN 26
INH IN 27
28
MUTE 29
MONO 30
31
VCC 32
64 G6
63 G7
62 G8
61 G9
60 G10
59 G11
58 G12
57 G13
56
55 DCS IN
54 DCS OUT
53 GND
52 OSC 2
51 OSC 1
50 TEST
49 RST IN
48 KIN 1
47 KIN 2
46 KIN 3
45 KIN 4
44 KO 1
43 KO 2
42 KO 3
41 KO 4
40
39
38
37 KO 8
36 CE
35 DATA OUT
34 DATA IN
33 CLK

(2) Table of Key Matrix

	KEY-IN1	KEY-IN2	KEY-IN3	KEY-IN4
KEY-OUT1		TIMER 1	TIMER 2	DAILY
KEY-OUT2	WAKE-UP /SLEEP	CLOCK ADJ	CANCEL	MEMORY
KEY-OUT3	UP	DOWN	PRESET UP	PRESET DOWN
KEY-OUT4	FM	AM	FM MODE/MUTE	

(3) Pin Functions

Pin No.	Name	I/O	Function
1~5	G5~G1	O	FL grid control output
6~17	S1~S12	O	FL segment control output
19	-BP	–	Power supply for FL drive circuit
21	KO9	O	Key matrix output
22	FREQ.OUT	O	Test signal output
23	RM IN	I	Pull up
25	STEREO IN	I	STEREO indicator input
26	TUNED IN	I	Tuned indicator input
27	INH IN	I	Inhibit signal input
29	MUTE	O	Muting output
30	MONO	–	NC
32	VCC	–	Power supply (+5V)
33	CLK	O	Serial clock output to PLL (IC102 : LC7218).
34	DATA IN	I	Serial data input from PLL (IC102 : LC7218).
35	DATA OUT	O	Serial data output to PLL (IC102 : LC7218).
36	CE	O	Chip enable output to PLL (IC102 : LC7218).
37	KO8	O	Key matrix output
41~44	KO4~KO1	O	Key matrix output
45~48	KI4~KI1	I	Key matrix input
49	RST IN	I	Reset signal input
50	TEST	–	Connect to Vcc
51	OSC 1	I	Clock oscillation input
52	OSC 2	O	Clock oscillation output
53	GND	–	GND
54	DCS OUT	O	COMPULINK signal output
55	DCS IN	I	COMPULINK signal input
57~64	G13~G6	O	FL grid control output

■ LA3401 (IC105) : FM MPX Demodulator

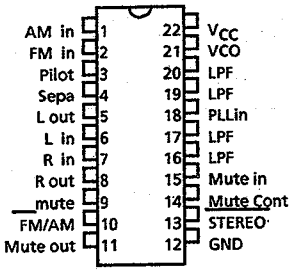
1. The main function descriptions

(1) Demodulate the FM Multiplex Signal (Stereo signal).

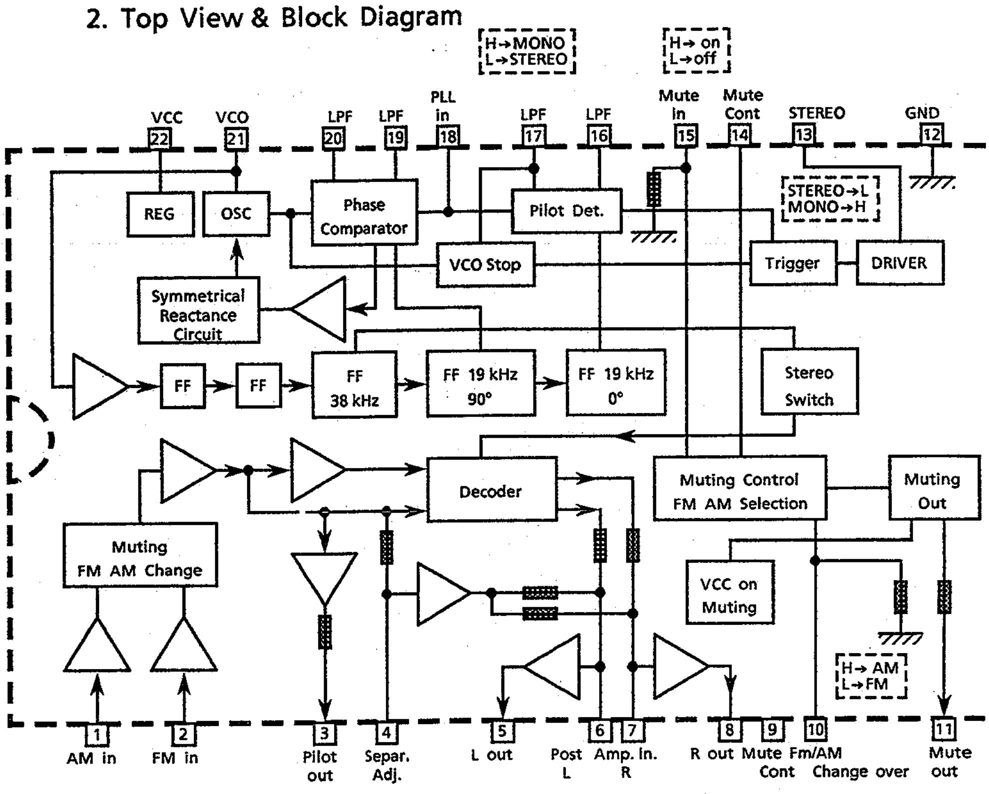
(2) When receiving FM Stereo Signal, it outputs the signal for indicator.

(3) AM / FM Audio Amplifier.

(1) Terminal Layout


AM in 1
FM in 2
Pilot 3
Sepa 4
L out 5
L in 6
R in 7
R out 8
mute 9
FM/AM 10
Mute out 11
22 Vcc
21 VCO
20 LPF
19 LPF
18 PLLin
17 LPF
16 LPF
15 Mute in
14 Mute Cont
13 STEREO
12 GND

2. Top View & Block Diagram


H→MONO
L→STEREO
H→ on
L→off
VCC 22
VCO 21
LPF 20
LPF 19
PLL in 18
LPF 17
LPF 16
Mute in 15
Mute Cont 14
STEREO 13
GND 12
REG
OSC
Phase Comparator
Pilot Det.
STEREO→L
MONO→H
VCO Stop
Trigger
DRIVER
Symmetrical Reactance Circuit
FF
FF
FF 38 kHz
FF 19 kHz 90°
FF 19 kHz 0°
Stereo Switch
Decoder
Muting Control FM AM Selection
Muting Out
Muting FM AM Change
VCC on Muting
H→ AM
L→FM
1 AM in
2 FM in
3 Pilot out
4 Separ. Adj.
5 L out
6 Post L
7 Amp. In. R
8 R out
9 Mute Cont
10 Fm/AM Change over
11 Mute out

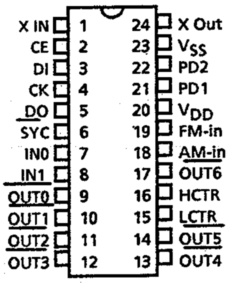
3. Pin Functions

Pin No.	Symbol	I/O	Function
1	AM in	I	This is an input terminal for AM detection signal.
2	FM in	I	This is an input terminal for FM detection signal.
3	Pilot out	O	Output of MPX pilot signal (Connect to Pin18).
4	Sepa. Adj.	—	Separation adjustment.
5	L. out	O	Left channel signal output.
6	L	O	Reversal output of Pin5.
7	R	O	Reversal output of Pin8.
8	R out	O	Right channel signal output
9	Mute Cont	—	The mute time is controlled by the connected capacitor when turning the power switch on.
10	$\overline{\text{FM}}$ / AM	I	Change over the FM / AM input. "H" : AM, "L" : FM
11	Mute out	—	Not use
12	GND	—	Ground terminal.
13	$\overline{\text{Stereo}}$	O	Stereo indicator output. Stereo : "L", Mono : "H"
14	Mute Cont	—	The mute time is controlled by the connected capacitor when changing over the FM / AM
15	Mute in	I	MutE signal input. "H" : Mute on, "L" : Mute off.
16	LPF	—	Low pass filter of pilot detector.
17	LPF	—	While this terminal goes to "H", the VCO stop.
18	Pilot in	I	PLL input.
19	LPF	—	Low-pass filter of PLL.
20	LPF	—	Low-pass filter of PLL.
21	VCO	I	Voltage controlled oscillator terminal.
22	V_{CC}	—	Power supply.

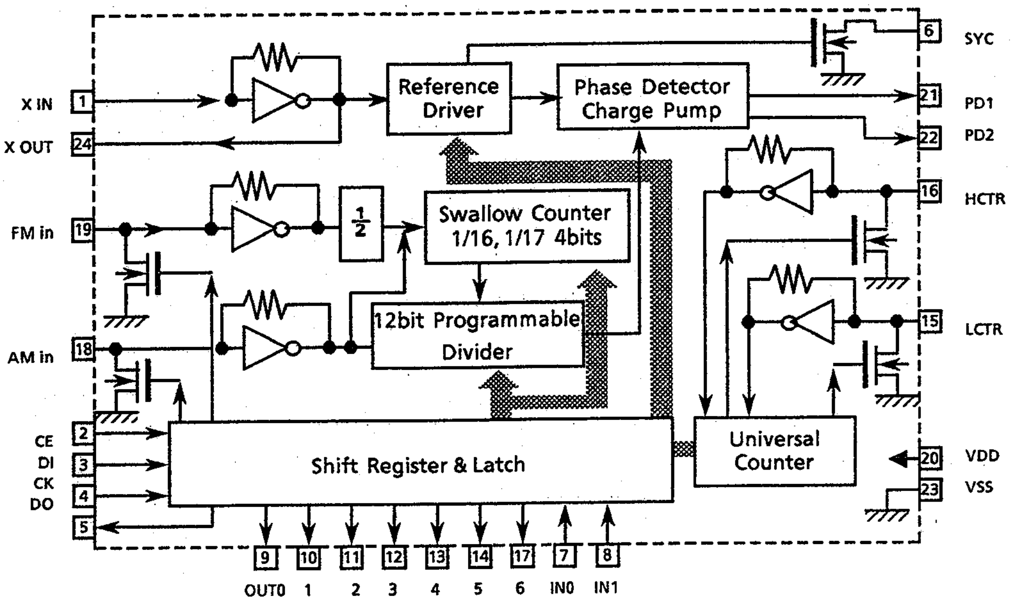
■ LC7218 (IC102) : PLL Synthesizer

1. The main function descriptions
   (1) It makes the local oscillation frequency by the control data from IC102.
   (2) Decode the control signal and transmit the signal for receiving conditions.
   (3) For the best tuning, count the internal-frequency and transmit the data to IC102.

2. Terminal Layout


X IN 1
CE 2
DI 3
CK 4
DO 5
SYC 6
IN0 7
IN1 8
OUT0 9
OUT1 10
OUT2 11
OUT3 12
24 X Out
23 V_{SS}
22 PD2
21 PD1
20 V_{DD}
19 FM-in
18 AM-in
17 OUT6
16 HCTR
15 LCTR
14 OUT5
13 OUT4

3. Block Diagram


X IN 1
X OUT 24
FM in 19
AM in 18
CE 2
DI 3
CK 4
DO 5
Reference Driver
Phase Detector Charge Pump
1/2
Swallow Counter 1/16, 1/17 4bits
12bit Programmable Divider
Shift Register & Latch
Universal Counter
6 SYC
21 PD1
22 PD2
16 HCTR
15 LCTR
20 VDD
23 VSS
9 OUT0
10 1
11 2
12 3
13 4
14 5
17 6
7 IN0
8 IN1

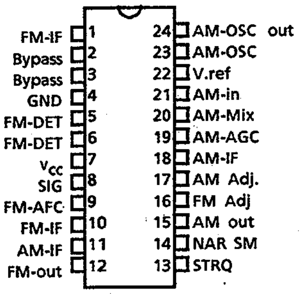
4. Pin Functions

Pin No.	Symbol	Name	I/O	Function
1, 24	X in, X out	X in, X out	I/O	Crystal oscillator (7.2MHz).
2	CE	CE	I	Fix the chip enable to "H" when inputting (DI) and outputting (DO) the serial data.
3	DI	DI	I	Receive the control data from the controller (IC201).
4	CK	CK	I	This clock is used to synchronize data when transmitting the data of DI and DO.
5	DO	DO	O	Transmit the data from LC7218 to the controller which is synchronized with CK.
6	SYC	$\overline{\text{SYC}}$	–	Not use
7	IN0	$\overline{\text{Tuned in}}$	I	Receive the tuned signal from IC104 (LA1266A).
8	IN1	Stop in	I	Not use
9	OUT 0	POWER	O	Not use
10	OUT 1	QSC	O	Not use
11	OUT2	MONO	O	It is "H" on FM-monaural, "L" on FM-stereo.
12	OUT3	$\overline{\text{FM}}$	O	It is "L" on FM mode.
13	OUT4	$\overline{\text{MW}}$	O	It is "L" on AM mode.
14	OUT5	$\overline{\text{LW}}$	O	Not use
15	LCTR	AM-IF	I	Universal counter input for AM-IF from IC104 (LA1266A).
16	HCTR	FM-IF	I	Universal counter input for FM-IF from IC104 (LA1266A).
17	OUT6	IF REQ	O	Output the "IF-signal request" to IC104 when the pin-7 (tuned in) goes to "H".
18	AM in	AM osc	I	Input the local oscillator signal of AM.
19	FM in	FM osc	I	Input the local oscillator signal of FM.
20	V_{DD}	V_{DD}	–	This is a terminal of power supply.
21	PD1	PD1	O	PLL charge pump output: When the local oscillator signal frequency is higher than the reference frequency, high level signals will output. When it is lower than the reference frequency, low level signals will output. When it is same as reference frequency signals, it will be floating.
22	PD2	PD2	O	Not use
23	Vss	Vss	–	GND

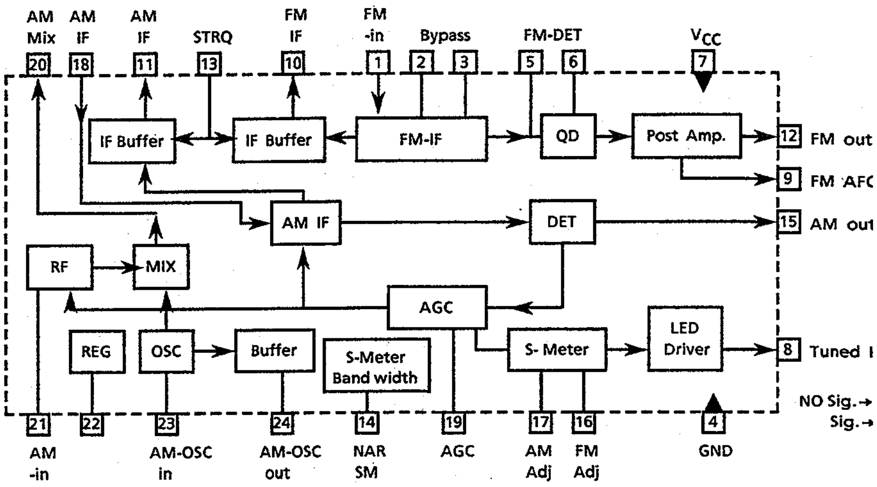
■ LA1266A (IC104) : FM AM IF AMP & detector

1. The main function descriptions
   (1) Amplify and detect of FM intermodulation frequencies.
   (2) It has local oscillator and mixer for AM, and amplify the AM-IF signal.

2. Top View


FM-IF 1
Bypass 2
Bypass 3
GND 4
FM-DET 5
FM-DET 6
Vcc 7
SIG 8
FM-AFC 9
FM-IF 10
AM-IF 11
FM-out 12
24 AM-OSC out
23 AM-OSC
22 V.ref
21 AM-in
20 AM-Mix
19 AM-AGC
18 AM-IF
17 AM Adj.
16 FM Adj
15 AM out
14 NAR SM
13 STRQ

3. Block Diagram

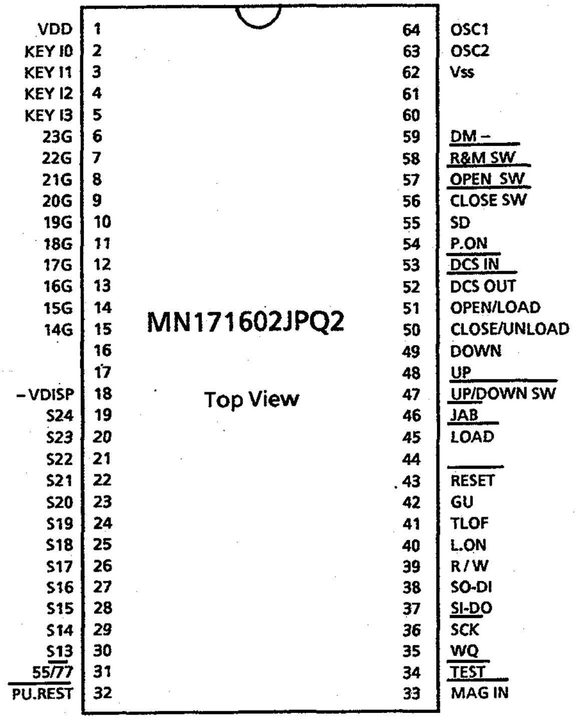

AM Mix 20
AM IF 18
AM IF 11
STRQ 13
FM IF 10
FM -in 1
Bypass 2 3
FM-DET 5 6
Vcc 7
IF Buffer
IF Buffer
FM-IF
QD
Post Amp.
12 FM out
9 FM AFC
AM IF
DET
15 AM out
RF
MIX
AGC
REG
OSC
Buffer
S-Meter Band width
S- Meter
LED Driver
8 Tuned
NO Sig.→
Sig.→
21 AM -in
22
23 AM-OSC in
24 AM-OSC out
14 NAR SM
19 AGC
17 AM Adj
16 FM Adj
4 GND

4. Pin Functions

Pin No.	Symbol	I/O	Function
1	FM IF	I	This is an input terminal of FM IF Signal.
2, 3	Bypass	-	Bypass of FM IF Amp.
4	GND	-	This is the device ground terminal.
5, 6	FM DET	-	FM detect transformer.
7	V_{CC}	-	This is the power supply terminal.
8	SIGNAL	O	Mute drive and signal stop drive output when tuning. Active Low
9	FM AFC	O	This is an output terminal of voltage for FM-AFC.
10	FM IF	O	When the IF REQ signal of IC102(LC7218) applies to pin13, the signal of FM IF outputs.
11	AM IF	O	When the IF REQ signal of IC102(LC7218) applies to pin13, the signal of AM IF outputs.
12	FM out	O	FM detection output.
13	STRQ	I	The IF-signals come out from pin10 (FM-IF) or pin11 (AM-IF) while this terminal goes to "High".
14	NAR SM	-	Control the Band-width of AM signal meter.
15	AM out	O	AM detection output.
16	FM Adj	-	For adjust the stop level (or mute level) of FM.
17	AM Adj	-	For adjust the stop level (or mute level) of AM.
18	AM-IF	I	Input of AM IF Signal.
19	AM-AGC	I	This is an AGC voltage Input terminal for AM.
20	AM-MIX	O	This is an output terminal for AM mixer.
21	AM-IN	I	This is an input terminal for AM RF Signal.
22	V.REF	-	Control the Band-width of FM signal meter.
23	AM-OSC	-	This is a terminal of AM Local oscillation circuit.
24	AM-OSC out	O	AM Local Oscillation Signal output.

■ MN171602JPQ2 (IC901) : CD SYSTEM CONTROLLER

1. Terminal Layout


MN171602JPQ2
Top View
VDD 1
KEY I0 2
KEY I1 3
KEY I2 4
KEY I3 5
23G 6
22G 7
21G 8
20G 9
19G 10
18G 11
17G 12
16G 13
15G 14
14G 15
16
17
-VDISP 18
S24 19
S23 20
S22 21
S21 22
S20 23
S19 24
S18 25
S17 26
S16 27
S15 28
S14 29
S13 30
55/77 31
PU.REST 32
64 OSC1
63 OSC2
62 Vss
61
60
59 DM-
58 R&M SW
57 OPEN SW
56 CLOSE SW
55 SD
54 P.ON
53 DCS IN
52 DCS OUT
51 OPEN/LOAD
50 CLOSE/UNLOAD
49 DOWN
48 UP
47 UP/DOWN SW
46 JAB
45 LOAD
44
43 RESET
42 GU
41 TLOF
40 L.ON
39 R/W
38 SO-DI
37 SI-DO
36 SCK
35 WQ
34 TEST
33 MAG IN

2. Key Matrix

	KEY IN 0	KEY IN 1	KEY IN2	KEY IN3
G14	2	4	6	P
G15	EJECT	1	3	5
G16	+10 ⏮	+1 ⏭	■/CANCEL	▶/❚❚
G19	SIDEA/B	CALL	REPEAT	⏏
G20	EDIT	MEMORY	INTRO	P.MODE

3. Pin Functions Description

Pin NO.	symbol	I/O	Function	Pin NO.	symbol	I/O	Function
1	VDD	I	Power supply	33	MAG-IN	I	Magazine in signal
2	KEY I0	I	Key matrix input	34	TEST	I	Entering test mode with "L"
3	KEY I1	I	Key matrix input	35	WQ	I	Write request input
4	KEY I2	I	Key matrix input	36	SCK	O	Clock output for data transfers
5	KEY I3	I	Key matrix input	37	SI-DO	I	Serial data input
6	23G	O	FL grid control output	38	SO-DI	O	Serial data output
7	22G	O	FL grid control output	39	R/W	O	Read / Write signal output
8	21G	O	FL grid control output	40	L.ON	O	Turns on laser
9	20G	O	FL grid control output	41	TLOF	O	Tracking servo off signal
10	19G	O	FL grid control output	42	GU	O	Increases tracking gain
11	18G	O	FL grid control output	43	RESET	I	Reset signal input
12	17G	O	FL grid control output	44		I	Connect to GND
13	16G	O	FL grid control output	45	LOAD	I	Disc load detect signal
14	15G	O	FL grid control output	46	JAB	I	JAB switch signal
15	14G	O	FL grid control output	47	UP/DOWN SW	I	Height detection signal
16		-	Non connect	48	UP	O	Lifter driving control signal
17		-	Non connect	49	DOWN	O	Lifter driving control signal
18	-VDISP	I	FL power supply	50	CLOSE/UNLOAD	O	P1 CLOSE or UNLOAD driving control signal.
19	S24	O	FL segment control output	51	OPEN/LOAD	O	P1 OPEN or LOAD.
20	S23	O	FL segment control output	52	DCS OUT	O	Compulink signal output
21	S22	O	FL segment control output	53	DCS IN	I	Compulink signal input
22	S21	O	FL segment control output	54	P.ON	O	H:power off, L:power oN.
23	S20	O	FL segment control output	55	SD	O	LOAD drive speed Down output.
24	S19	O	FL segment control output	56	CLOSE SW	I	"L" with tray closed
25	S18	O	FL segment control output	57	OPEN SW	I	"L" with tray opened
26	S17	O	FL segment control output	58	R&M SW	I	Reset&Memory SW input.
27	S16	O	FL segment control output	59	DM –	I	Spindle signal input
28	S15	O	FL segment control output	60		-	Connect to GND
29	S14	O	FL segment control output	61		-	Non connect
30	S13	O	FL segment control output	62	Vss	-	GND
31	55/77	I	Chip select input (H:55,L:77)	63	OSC2	O	Clock oscillation output
32	PU.REST	I	"L" with pickup at rest position	64	OSC1	I	Clock oscillation input

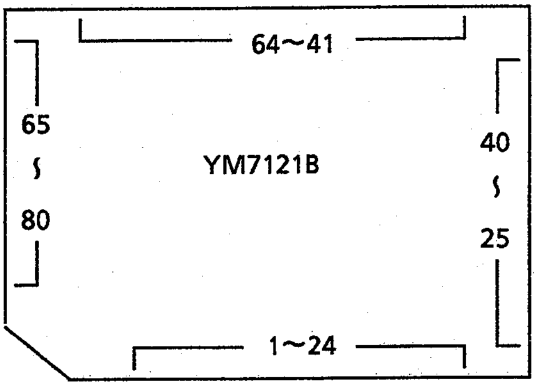
■YM7121B(IC401)

1. Outline

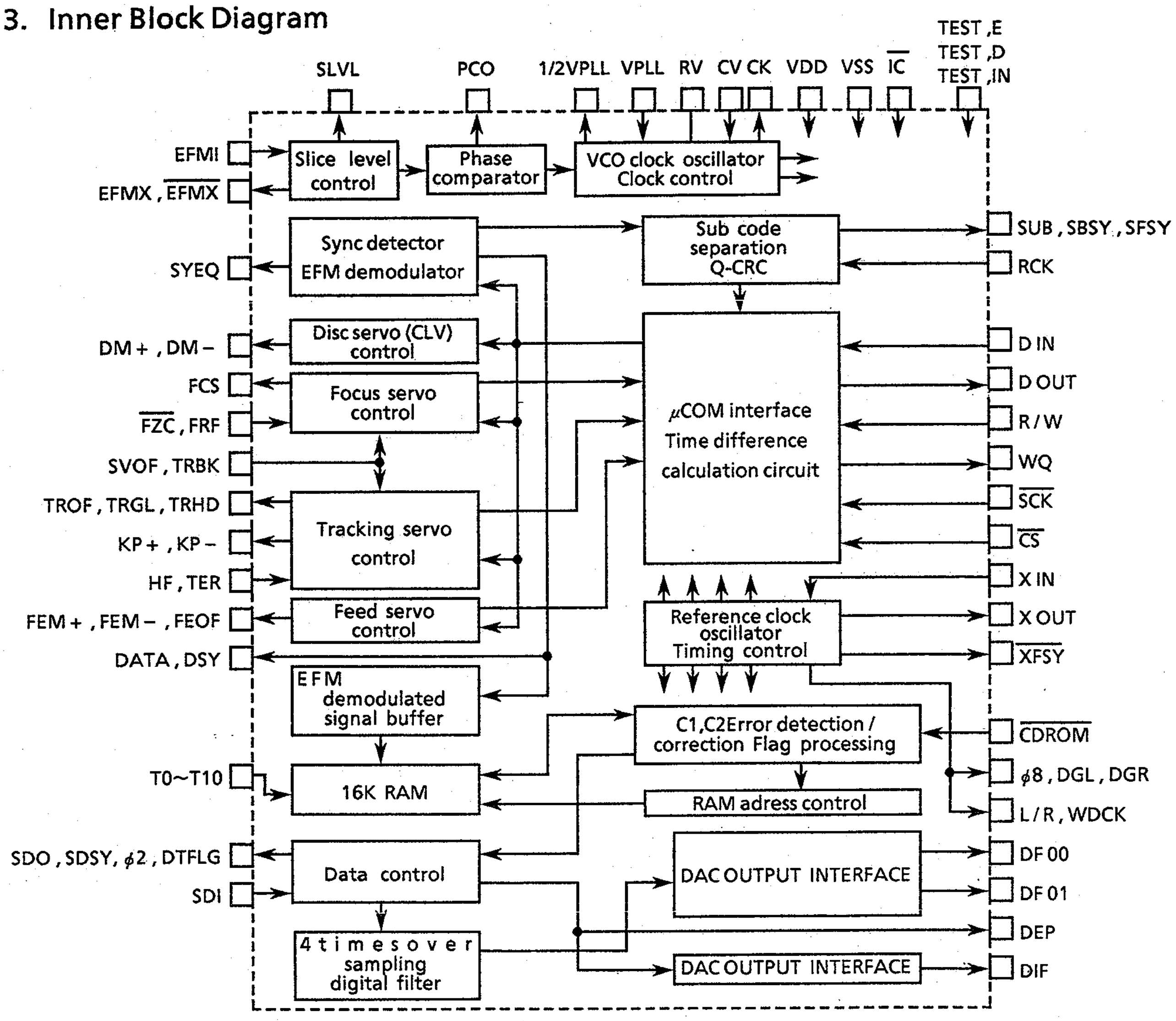
YM7121 is a C-MOS LSI for signal processing and servo control (SVC) in a CD player. It is used for the demodulation of the EFM signal from the laser pick up, detection / correction of the error signal, signal processing in digital filtering, etc. and for various servo controls (focusing, disc, tracking and feed servos).

And it contains digital interface which output the audio digital signals in S-RAM and CD-player. This digital interface matches EIAJ standards.

2. Top View


64~41
65
∫
80
YM7121B
40
∫
25
1~24

3. Inner Block Diagram


SLVL
PCO
1/2VPLL
VPLL
RV
CV
CK
VDD
VSS
$\overline{IC}$
TEST ,E
TEST ,D
TEST ,IN
EFMI
EFMX , $\overline{EFMX}$
Slice level control
Phase comparator
VCO clock oscillator Clock control
Sync detector EFM demodulator
Sub code separation Q-CRC
SUB , SBSY , SFSY
RCK
SYEQ
DM + , DM –
Disc servo (CLV) control
FCS
Focus servo control
$\overline{FZC}$, FRF
SVOF , TRBK
μCOM interface Time difference calculation circuit
D IN
D OUT
R / W
WQ
$\overline{SCK}$
$\overline{CS}$
TROF , TRGL , TRHD
KP + , KP –
HF , TER
Tracking servo control
FEM + , FEM – , FEOF
Feed servo control
DATA , DSY
X IN
Reference clock oscillator Timing control
X OUT
$\overline{XFSY}$
EFM demodulated signal buffer
C1,C2Error detection / correction Flag processing
$\overline{CDROM}$
T0~T10
16K RAM
RAM adress control
φ8 , DGL , DGR
L / R , WDCK
SDO , SDSY , φ2 , DTFLG
SDI
Data control
DAC OUTPUT INTERFACE
DF 00
DF 01
DEP
4 times over sampling digital filter
DAC OUTPUT INTERFACE
DIF

4. Pin Functions Description

Pin No.	Symbol	I/O	Function
1	CV	I	Adequate time constant is added to this terminal and input the PCO output. This makes the structure of clock reproduce circuit by inner VCO circuit.
2	RV	–	RV terminal is standard voltage terminal of inner VCO. And capacity for stabilizing is added to this terminal.
3 32 72	VDD	–	These are +5V power supply terminals.
4 5 70	TEST. IN TEST. E TEST. D	I I I	These terminals are for test.
6	SYEQ	O	This is the check output terminal, it becomes high when flame synchronizing signal detected from EFM pattern coincides frame synchronizing signal from internal counter.
7	DSY	O	DSY is synchronizing signal which becomes high when first signal of data output comes in. This terminal is the check terminal.
8	DATA	O	This terminal is for checks. The DATA is a serial signal of CK bit rate and it contains 8 bit EFM demodulation signal and 5 bit data control signal in 17 bit.
9	CK	O	CK has 4.3218 MHz clock.
10~19	T0~T9	I	This terminal is internal RAM test terminal, and connected GND.
22	DEP	O	De-emphasis is necessary when this terminal is high.
23	DIF	O	DIF is digital audio interface format output matched EIAJ standards.
24	SDO	O	SDO is a serial signal output of ϕ2 bit rate. (The MSB puts in at first.)
25	SDI	I	SDI is the input terminal of 4 times over sampling digital filter. It is usually connected with SDO.
26	SDSY	O	This terminal changes the Lch / Rch by LSB of the SDO.
27	DTFLG	O	Not used.
28	ϕ2	O	ϕ2 is 2.1168 MHz crystal clock.
29, 52, 77	VSS	–	GND
30 31	XOUT XIN	O I	The clock frequency is generated by crystal oscillator (16.9344MHz) and connecting capacitors each pin.
33 34 35 36 37 38	$\overline{\mathrm{XFSY}}$ SUB SBSY RCK SFSY CDROM	O O O I O O	Not used.
39	ϕ8	O	ϕ8 is 8.4672MHz crystal clock.
40 41	WDCK L/R	O O	This is synchronizing signal for data transfer and it connects with DAC.
42 43	DGL DGR	O O	Not used.
44 45	DF01 DF00	O O	Serial data output. (Right channel.) Serial data output. (Left channel.)
46	$\overline{\mathrm{SCK}}$	I	This terminal is connected to μCOM. It is an input terminal that carries the clock signal for data transfers.
47	R/W	I	This connects with microcomputer and it is an output terminal for switching data transmission mode. it enables to transmit data from SVC to microcomputer when R/M is "L" and from microcomputer to SVC when R/W is "H".
48	$\overline{\mathrm{CS}}$	I	This is a chip select terminal for YM7121B.
49	DOUT	O	This terminal is the data output terminal connected to μCOM. When R/W is low, data is transferred from YM7121B to μCOM, according to the SCK clock input.

Pin No.	Symbol	I/O	Function
50	WQ	O	This terminal is connected to μCOM. It is a request signal which demands to μCOM inputting the data transfer (YM7121B to μCOM).
51	DIN	I	This is a data input terminal connected to μCOM. When R/W is high, the data is transferred from μCOM to YM7121B according to the SCK clock input.
53 54	DM+ DM−	O O	These terminals output the PWM to control the speed of spindle motor. The speed of the motor goes up when DM+ is high, and slows down when DM− is high: both terminals can not become high simultaneously.
55 56 60 61 62 63 64	HF TER TRHD TRGL TROF KP− KP+	I I O O O O O	When tracks are being crossed during serches, the amplitude variation of the generated HF signal is sampled at the zero − cross point of the tracking error signal TER and the TROF signal is output. The level variations of this signal turn the servo on and off, greatly facilitaing track acquisition. KP+ or KP− is output to conduct tracking, and TRHD is output during tracking to cause generation of the tracking error signal. The TRGL signal is for increasing the tracking gain after tracking is completed.
57 58 59	FEM+ FEM− FEOF	O O O	The FEM+ and FEM− are output as high speed feed signals, and FEOF signal is output for cutting the feed servo during high speed feed.
65	TRBK	I	TRBK is input to apply tracking brake from outside. TRGL becomes low with high input and inner control signal TBKE becomes high.
66	SVOF	I	When the signal inputs to SVOF, tracking and feed srvo set to OFF. TROF and FEOF become "H" with high input, and TRHD, KP+, KP− become low.
67 68 69	$\overline{\text{FZC}}$ FCS FRF	I O I	These terminals are used for controlling the focus servo. The FCS is for a leading signal of Focusing; the signal, generated when the focus point is achieved, terminate the focusing operation; and FCO flag is dropped internally by FRF signal generated when reflected light is detected.
71	$\overline{\text{IC}}$	I	YM7121B needs initializing when power supply turn on. IC will be low more than 400μs since XIN is input clock with VDD standard.
73 74 75	SLVL EFMX $\overline{\text{EFMX}}$	O O O	Amplitude limited, mutually anti-phased signals are output from EFMX and $\overline{\text{EMFX}}$. Slice level is controlled by these signals and external amplifier. SLVL is output amplitude alteration component of both terminals. When integral circuit is connected to external. YM7121B easily can control slice level.
76	EFMI	I	This terminal is input EFM signal. (1~2 Vpp)
78	PCO	O	This terminal outputs the phase difference when the polarity of the clock and the EFM pattern changes.
79	VPLL	I	This terminal is input D.C. voltage matched VCO free run frequency. (17.2872 MHz)
80	1/2 VPLL	O	This terminal outputs a half of VPLL input, and capacity for stabilizing is added to this terminal.

■ JCE4501(IC703)···D/A CONVERTER

1. Outline

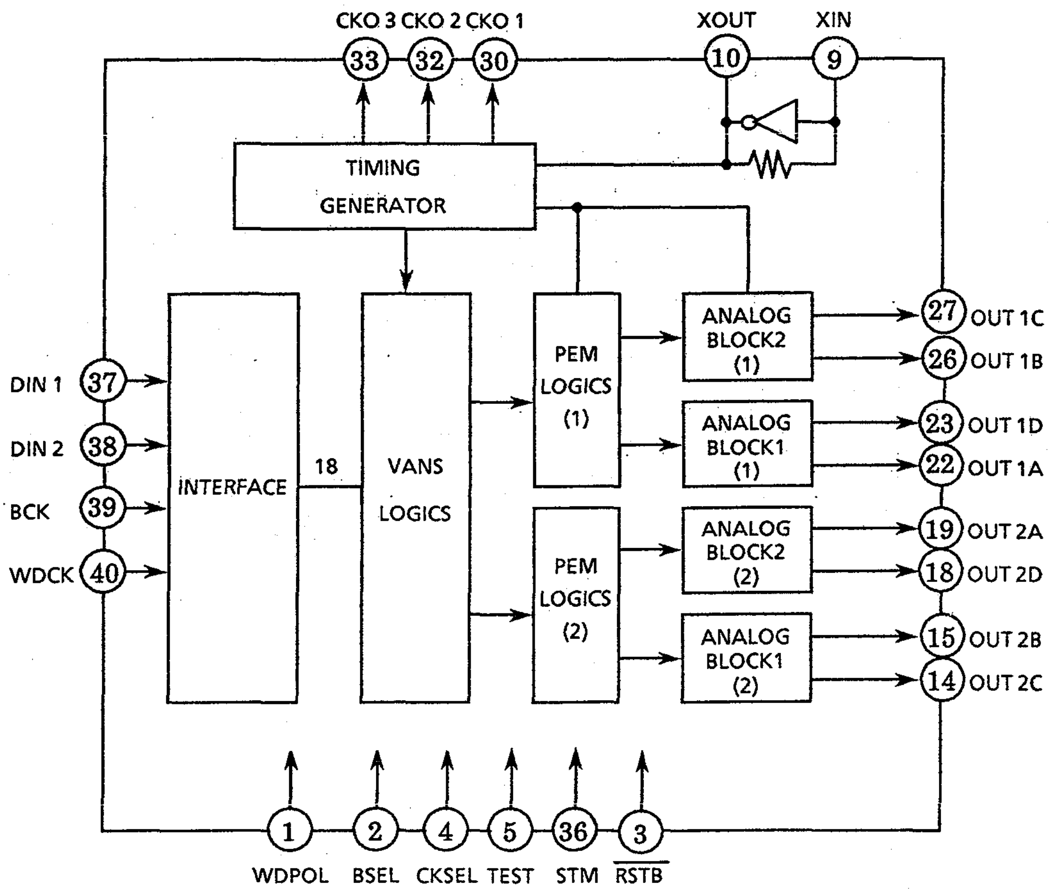
The JCE4501 is a CMOS digital-analog converter with independent left and right channels. It was developed for PCM digital audio equipment. It features pulse edge modulation (PEM) and Victor advanced noise shaping (VANS) for resolution equivalent to 20 bits (0-20 kHz) and a low distortion ratio. At JVC, this type of digital-analog converter is called a DD converter.

2. Terminal Layout

JCE4501

WDPOL	1	40	WDCK
BSEL	2	39	BCK
$\overline{\mathrm{RSTB}}$	3	38	DIN2
CLKSEL	4	37	DIN1
TEST	5	36	STM
COM	6	35	NC
NSUB	7	34	DVDD2
DVDD1	8	33	CKO3
XIN	9	32	CKO2
XOUT	10	31	DVSS2
DVSS1	11	30	CKO1
NC	12	29	NC
AVSS1	13	28	AVSS4
OUT2C	14	27	OUT1C
OUT2B	15	26	OUT1B
AVDD1	16	25	AVDD4
AVDD2	17	24	AVDD3
OUT2D	18	23	OUT1D
OUT2A	19	22	OUT1A
AVSS2	20	21	AVSS3

3. Internal Block Diagram

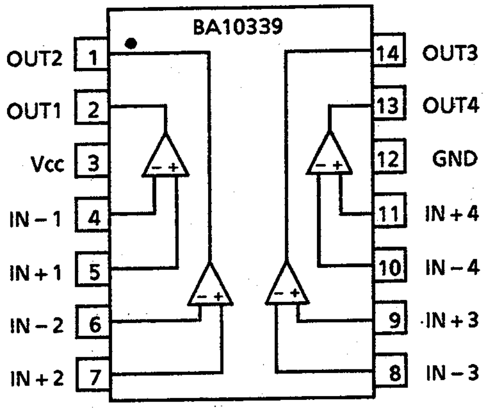

CKO 3 CKO 2 CKO 1
33
32
30
XOUT
XIN
10
9
TIMING GENERATOR
DIN 1
37
DIN 2
38
BCK
39
WDCK
40
INTERFACE
18
VANS LOGICS
PEM LOGICS (1)
PEM LOGICS (2)
ANALOG BLOCK2 (1)
ANALOG BLOCK1 (1)
ANALOG BLOCK2 (2)
ANALOG BLOCK1 (2)
27 OUT 1C
26 OUT 1B
23 OUT 1D
22 OUT 1A
19 OUT 2A
18 OUT 2D
15 OUT 2B
14 OUT 2C
1
2
4
5
36
3
WDPOL
BSEL
CKSEL
TEST
STM
RSTB

4. Pin Functions Description

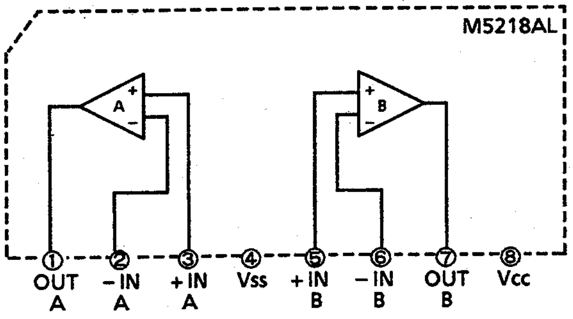
Pin No.	Symbol	I/O	Function
1	WDPOL	I	Word data polarity switching pin
2	BSEL	I	High : CXD 2554P format, low : YM3414 format
3	$\overline{\mathrm{RSTB}}$	I	Reset pin (low active)
4	CLKSEL	I	High: 256Fs mode, low: 384 Fs mode
5	TEST	I	Test mode switching pin
6	COM	I	COM board voltage fastening pin (connected to D-VDD)
7	NSUB	I	Silicon board voltage fastening pin (connected to D-VDD)
8	DVDD1	–	Digital power supply pin 1
9	XIN	I	Crystal oscillator input pin
10	XOUT	O	Crystal oscillator output pin
11	DVSS1	–	Digital ground pin 1
12	NC	–	To ground
13	AVSS1	–	Analog ground pin 1
14	OUT2C	O	2C PEM output pin
15	OUT2B	O	2B PEM output pin
16	AVDD1	–	Analog power supply pin 1
17	AVDD2	–	Analog power supply pin 2
18	OUT2D	O	2D PEM output pin
19	OUT2A	O	2A PEM output pin
20	AVSS2	–	Analog ground pin 2
21	AVSS3	–	Analog ground pin 3
22	OUT1A	O	1A PEM output pin
23	OUT1D	O	1D PEM output pin
24	AVDD3	–	Analog power supply pin 3
25	AVDD4	–	Analog power supply pin 4
26	OUT1B	O	1B PEM output pin
27	OUT1C	O	1C PEM output pin
28	AVSS4	–	Analog ground pin 4
29	NC	–	To ground
30	CKO1	O	Clock output pin 1 (384 Fs output)
31	DVSS2	–	Digital ground pin 2
32	CKO2	O	Clock output pin 2 (192 Fs output)
33	CKO3	O	Clock output pin 3 (128 Fs output)
34	DVDD2	–	Digital power supply pin 2
35	NC	–	Not connected
36	STM	I	Stereo/monaural switching pin (high: stereo output, low: left channel, reversed polarity left channel)
37	DIN1	I	Left channel 18-bits 8Fs serial data input pin
38	DIN2	I	Right channel 18-bits 8Fs serial data input pin
39	BCK	I	Bit clock input pin
40	WDCK	I	Word clock input pin

Internal Block Diagrams of Other ICs

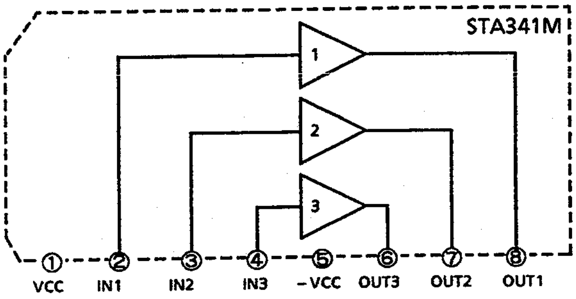
■ BA10339 (IC502) : Comparator


BA10339
OUT2 1
OUT1 2
Vcc 3
IN−1 4
IN+1 5
IN−2 6
IN+2 7
14 OUT3
13 OUT4
12 GND
11 IN+4
10 IN−4
9 IN+3
8 IN−3
− +

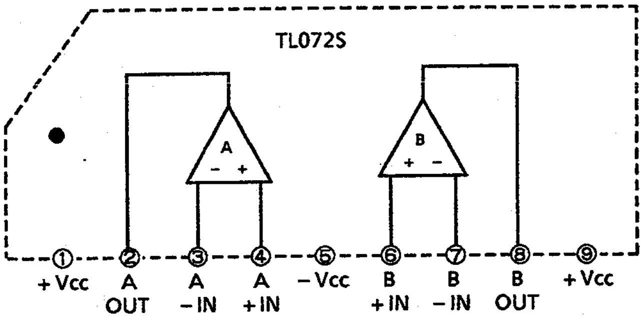
■ M5218AL (IC503,701,702,802,851,871) : Dual OP Amp.


M5218AL
A
B
+
−
① OUT A
② −IN A
③ +IN A
④ Vss
⑤ +IN B
⑥ −IN B
⑦ OUT B
⑧ Vcc

■ STA341M (IC801) : Motor Driver


STA341M
1
2
3
① VCC
② IN1
③ IN2
④ IN3
⑤ −VCC
⑥ OUT3
⑦ OUT2
⑧ OUT1

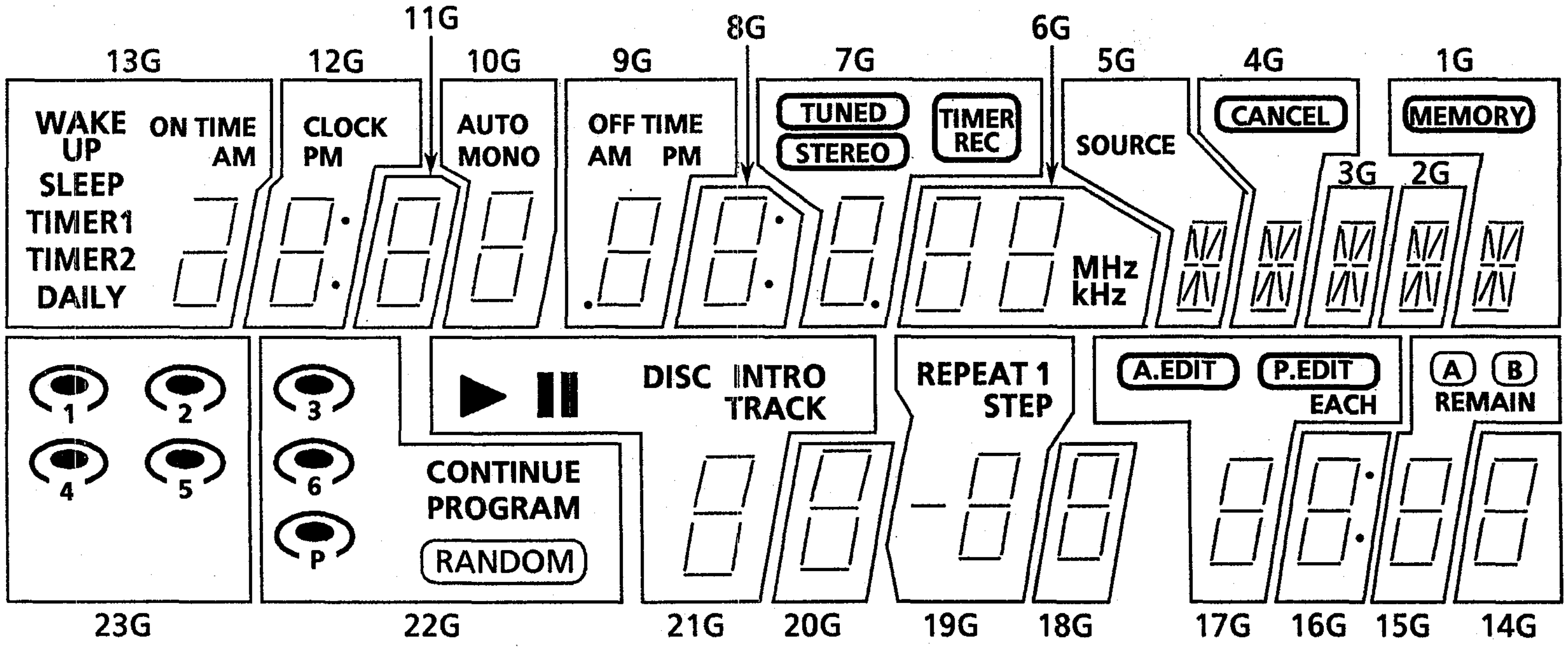
■ TL072S (IC501) : Dual OP Amp.

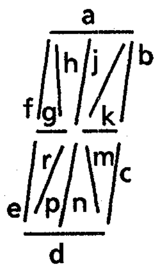

TL072S
A
B
− +
+ −
① +Vcc
② A OUT
③ A −IN
④ A +IN
⑤ −Vcc
⑥ B +IN
⑦ B −IN
⑧ B OUT
⑨ +Vcc

Internal Wiring of the FL Display Tube

■ ELU0001-135:(FL201)

1.Grid Assignment


13G
12G
11G
10G
9G
8G
7G
6G
5G
4G
1G
3G
2G
WAKE UP
SLEEP
TIMER1
TIMER2
DAILY
ON TIME AM
CLOCK PM
AUTO MONO
OFF TIME AM PM
TUNED
STEREO
TIMER REC
SOURCE
CANCEL
MEMORY
MHz kHz
1
2
4
5
3
6
P
DISC INTRO TRACK
CONTINUE PROGRAM
RANDOM
REPEAT 1 STEP
A.EDIT
P.EDIT
EACH
A
B
REMAIN
23G
22G
21G
20G
19G
18G
17G
16G
15G
14G


a
b
h
j
f
g
k
r
m
c
e
p
n
d

2.Pin Connection

TERMINAL NO. ELECTRODE	1 F1	2 F1	3 F1	4 NP	5 NP	6 13G	7 12G	8 11G	9 10G	10 9G	11 8G	12 7G	13 6G	14 5G	15 4G	16 3G	17 2G	18 1G	19 P S1	20 P S2
TERMINAL NO. ELECTRODE	21 P S3	22 P S4	23 P S5	24 P S6	25 P S7	26 P S8	27 P S9	28 P S10	29 P S11	30 P S12	31 NP	32 NP	33 23G	34 22G	35 21G	36 20G	37 19G	38 18G	39 17G	40 16G
TERMINAL NO. ELECTRODE		41 15G	42 14G	43 P S24	44 P S23	45 P S22	46 P S21	47 P S20	48 P S19	49 P S18	50 P S17	51 P 16	52 P S15	53 P S14	54 P S13	55 NP	56 NP	57 F2	58 F2	59 F2

3.Anode Connection Table

	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	d	d	d	d	d	d	d	d	d	d	d	d	d
S2	——	e	e	e	e	e	e	e	e	e	e	e	e
S3	c	c	c	c	c	c	c	c	c	c	c	c	c
S4	g	——	——	——	——	——	——	KHz	r	r	r	r	m
S5	b	col (:)	——	——	DP (.)	col (:)	DP (.)	MHz	k	n	n	n	n
S6	DAILY	——	——	——	AM	——	STEREO	i	j,p	j,p	j,p	j,p	j,p
S7	TIMER 2	g	g	g	g	g	g	g	g,m	g,m	g,m	g,m	g
S8	TIMER 1	f	f	f	f	f	f	f	f	f	f	f	f
S9	SLEEP	b	b	b	b	b	b	b	b	b	b	b	b
S10	WAKE UP	a	a	a	a	a	a	a	a	a	a	a	a
S11	AM	PM	——	MONO	PM	——	TUNED	j	h	h	h	h	h,k
S12	ON TIME	CLOCK	——	AUTO	OFF TIME	——	TIMER REC	h	SOURCE	CANCEL	k	k	MEMORY

	23G	22G	21G	20G	19G	18G	17G	16G	15G	14G
S13	⬭	CONTINUE	DISC	——	▭	——	——	——	——	——
S14	⬭	⬭	TRACK	——	STEP	——	EACH	col (:)	REMAIN	——
S15	⬬	⬬	a	a	a	a	a	a	a	a
S16	5	6	b	b	b	b	b	b	b	b
S17	⬭	⬬	c	c	c	c	c	c	c	c
S18	4	RANDOM	d	d	d	d	d	d	d	d
S19	⬬	P	e	e	e	e	e	e	e	e
S20	⬬	PROGRAM	f	f	f	f	f	f	f	f
S21	1	⬭	g	g	g	g	g	g	g	g
S22	⬭	⬭	▶	——	REPEAT	——	P.EDIT	——	A	——
S23	⬬	⬬	⏸	——	1	——	——	——	B	——
S24	2	3	INTRO	——	——	——	A.EDIT	——	——	——

Disassembly Procedures

1. Removing the top cover

1) Remove the 2 screws fastening both sides of the Top Cover, and the 2 screws fastening the rear sides.
2) Remove the Top Cover.

2. Removing the front panel

1) Remove the 3 hooks.
2) Remove the 1 screws fastening bottom of the Front Panel.
3) Disconnect the connectors. (JB221,JB222)
4) Remove the Front Panel.

3. Removing the changer assembly

1) Remove the top cover.
2) Remove the front panel.
3) Remove the 2 screws Ⓑ fastening the changer assembly.
4) Disconnect the connectors. (ⒸⒹⒺⒻⒼ)
5) Slide the changer assembly to arrow direction Ⓘ.
6) Remove the changer assembly.
   * NOTICE (for reinstalling)
   Wire Ⓗ should be set as Fig.2.

4. Removing the turntable base (Fig.2)

1) Remove the changer assembly.
2) Turn over the changer assembly.
3) Remove the 3 screws Ⓘ.
   * NOTICE : The left side spring differs from the right side ones.
4) Take the turntable base out.

5. Exchanging the pickup (Fig.2)

1) Remove the screw Ⓙ, and remove the feed nut support.
2) Remove the screw Ⓚ.
3) Remove the Feed Screw assembly , and remove the Pickup with the pickup shaft.
4) Exchange the pickup.

6. Removing the magazine holder (Fig.3)

1) Remove the 2 screws fastening the magazine holder.
2) Slide the magazine holder to arrow direction Ⓛ.
3) Remove the magazine holder to upside , and remove the tray stopper at the same time.

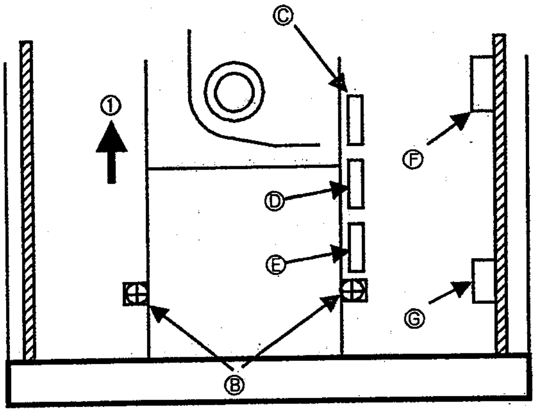


Fig.1

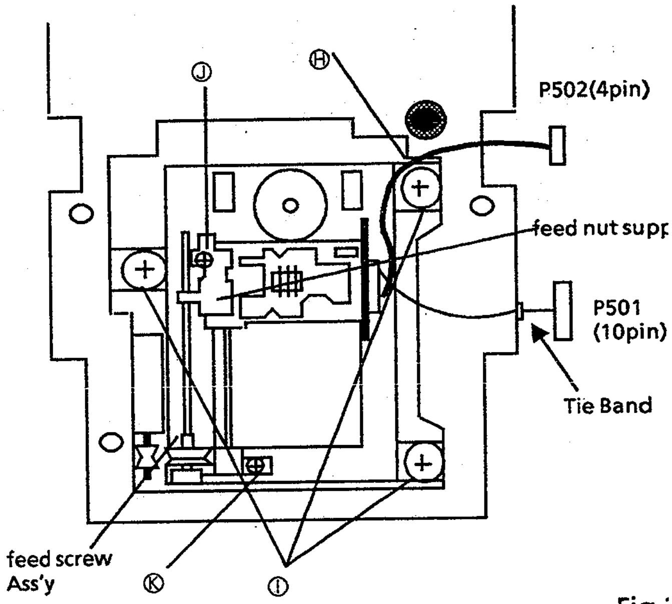


Fig.

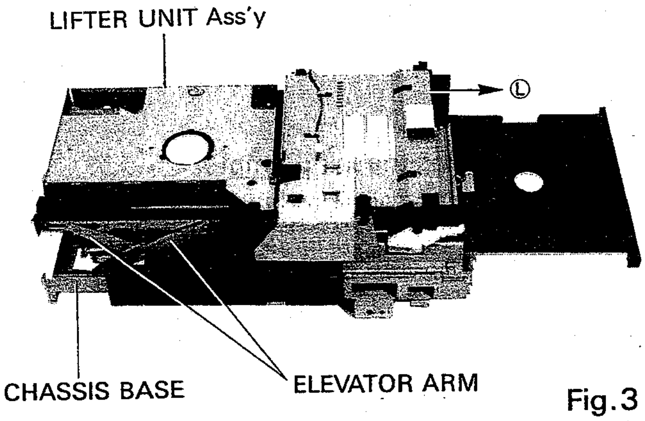


Fig.3

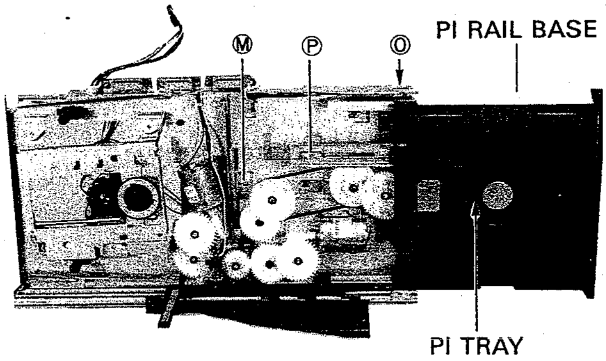


Fig.

7. Removing the LIFTER UNIT Ass'y (Fig.3)

1) Remove the MAGAZINE HOLDER.
2) Lift the LIFTER UNIT Ass'y to the top position.
3) Remove the ELEVATOR ARMS from the CHASSIS BASE and the LIFTER UNIT Ass'y.
4) Remove the LIFTER UNIT Ass'y.

※ The LIFT CAM can be released, After removing the LIFTER UNIT Ass'y (Fig.7)

1) When installing the lift cam, Put the cam slider to the position shown in fig 7.
2) Install the changer assembly.
3) Set the power ON to operate the mechanism.
4) Set the power OFF while the disc is playing.
5) Set the power ON again. In this case the unit will be reseted.

8. Removing the P1 RAIL BASE Ass'y (Fig.4,8)

1) Rotate the gear Ⓝ clockwise a little.
2) Remove the P1 TRAY.
3) Remove the screw Ⓜ.
4) Remove the P1 RAIL BASE Ass'y.

9. Removing the P1 RAIL BASE (Fig.4,5,6)

1) Remove the P1 RAIL BASE Ass'y.
2) Remove the screw Ⓞ fixing the open/close sw and the sw.
3) Pull the P1 RAIL BASE by pulling up the hook Ⓟ sightly.
4) Remove the P1 RAIL BASE.

※ Install gear ⓑ so that part ⓐ shown in fig.5 is perpendicular to the P1 rail base.

The Gear Position when the P1 Rail Base is pulled out forward.

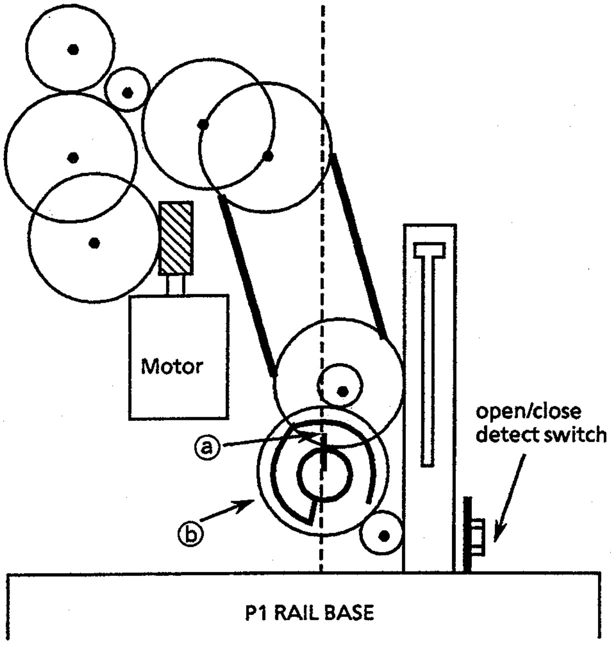


Fig.5

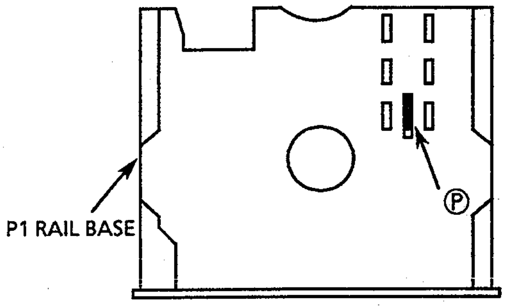


Fig.6

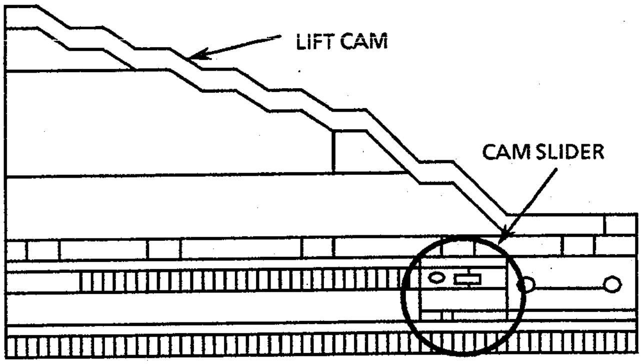


Fig.7

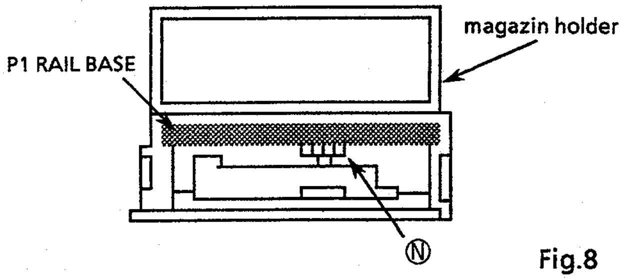
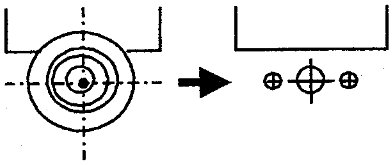


Fig.8

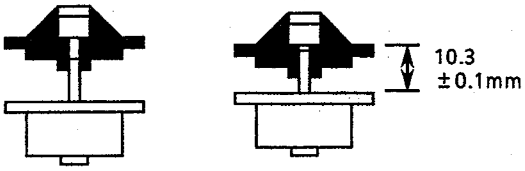
10. Removing the spindle motor

1) Remove the TURN TABLE BASE.
2) Turn over TURN TABLE BASE.
3) Remove the pressed-in turntable.
4) Remove the 2 screws fastening the motor.
5) Remove the spindle motor.

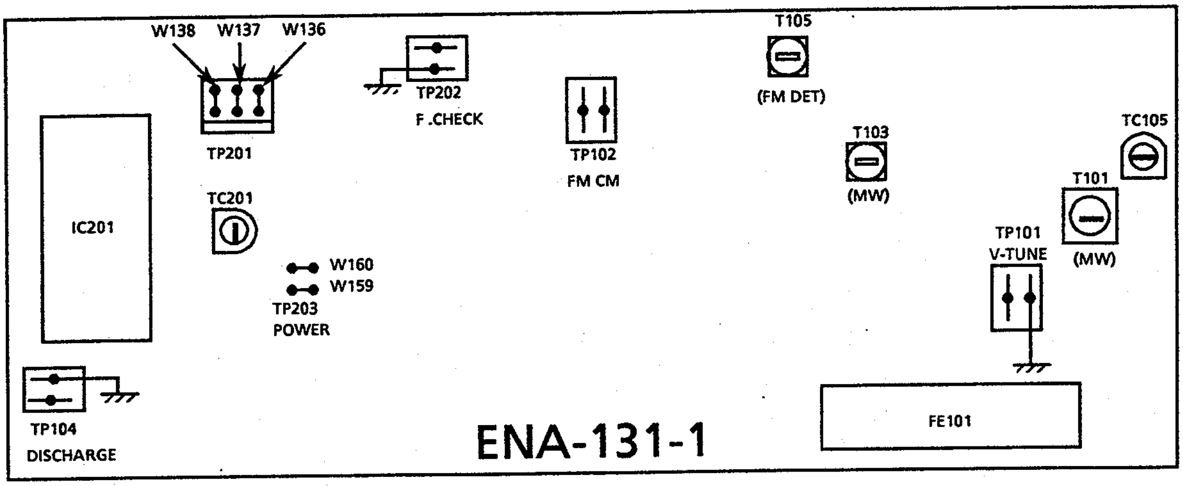


11. Mounting the spindle motor

1) Alternately tighten the 2 screws.
2) Fit the turntable by pressing gently at the centre to obtain a distance of 10.3mm ± 0.1mm from the mechanism base to the top of the turntable.



FM / AM Tuner Alignment Procedures


W138
W137
W136
TP201
TP202
F.CHECK
TP102
FM CM
T105
(FM DET)
T103
(MW)
TC105
T101
(MW)
TP101
V-TUNE
IC201
TC201
W160
W159
TP203
POWER
TP104
DISCHARGE
ENA-131-1
FE101

1. FM section

■ FM oscillator

(1) Set the frequency display to 108.0MHz.
(2) Confirm that the FM inter-station noise is received.
(3) Confirm that the voltage of test point TP101 becomes 8.0 ± 2.0V.
(4) Set the frequency display to 87.5MHz and confirm the voltage of test point TP101 becomes 1.6 ± 1.0V.

■ FM detector coil : T105

(1) Connect a digital voltmeter to test point TP 102, and receive to 100.1MHz signal with SSG ATT 70dB.
(2) Adjust T105 so that the digital voltmeter reads 0 ± 1.5mV.

2. MW section

■ MW oscillator : T103

(1) Set the frequency display to 530kHz ai confirm that the voltage of test point TP101 becomes 0.9 ± 0.2V.
(2) Set the frequency display to 1710kHz and confirm that the voltage of test point TP101 becomes 8.0 ± 0.8V .
(3) If its voltage exceeds the allowance, adjust T103 to obtain the voltage.

■ MW antenna coil : T101

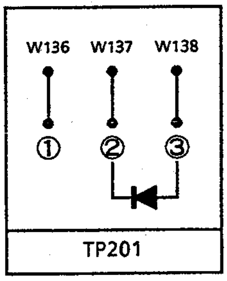
(1) Connect a loop antenna to the "AM Loop" terminal on the rear panel.
(2) Adjust T101 to obtain the best receivii sensitivity on 600kHz or 603kHz.

■ MW antenna trimmer : TC105

(1) Adjust TC105 to obtain the best receiving sensitivity on 1400kHz or 1404kHz.

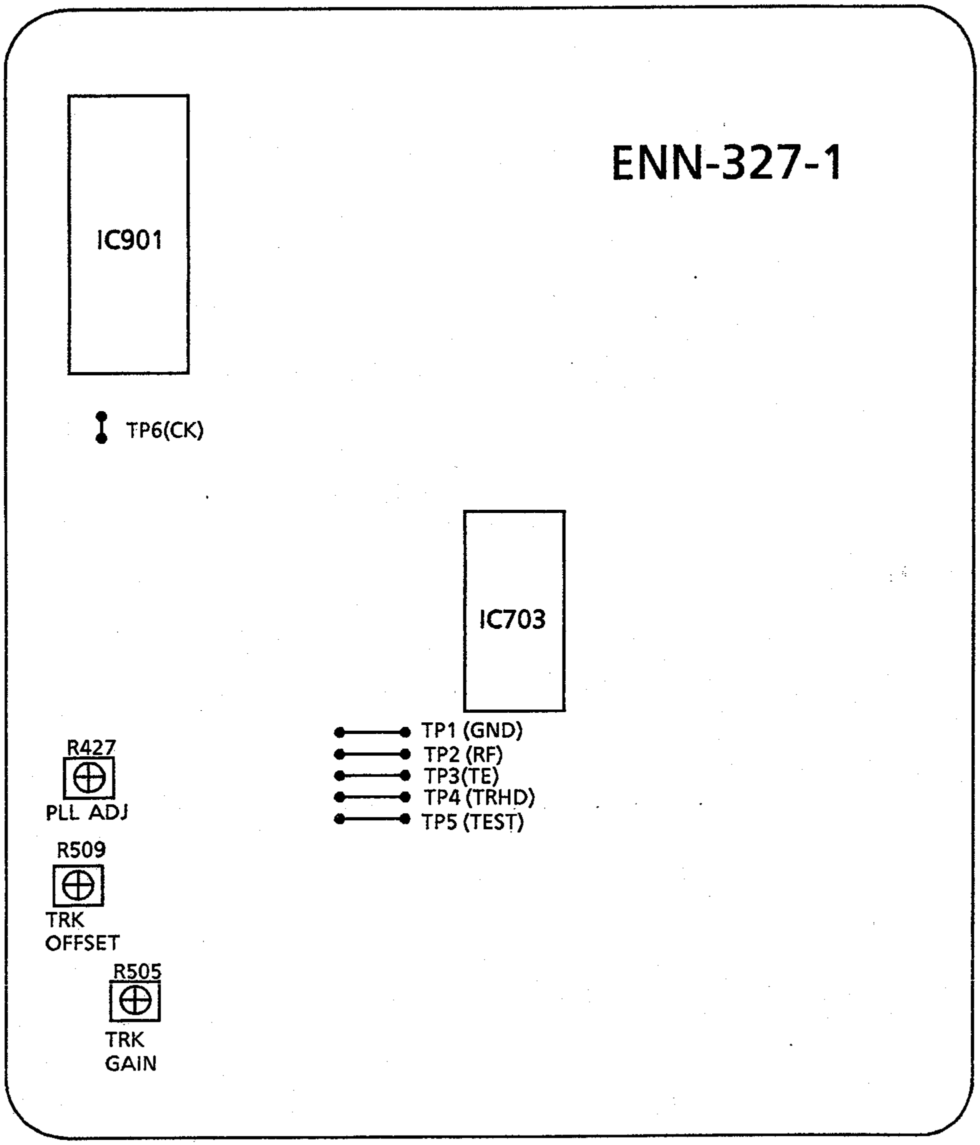
Clock Generator Frequency Adjustment

1. Switch OFF the DX-MX77MTN's power source, then pull out the AC plug.
2. Short circuit TP201's terminals ② and ③ with the diode as shown in the accompanying diagram, then insert the AC plug into the receptacle to switch the power ON.
3. Confirm that the tuner's FL display is off, then remove the diode and connect the frequency counter to TP 202(FREQ. CHECK).
4. Adjust TC201 so that the counter becomes 34,952.5 ± 0.15 Hz.


W136
W137
W138
①
②
③
TP201

Example :
1SS133
1SS119
1S2473

CD Adjustment Procedures



(1) PLL free-running adjustment

a. Measuring instrument
   Frequency counter

b. Adjusting procedure
   1. Connect a frequency counter with TP6 (CK) and TP1 (GND) on the main PC board.
   2. Adjust R427 for setting the frequency counter's value becomes 4.295±0.005MHz.
      (On the STOP MODE)
   3. Perform this adjustment immediately after the power is turned on.

(2) Tracking offset adjustment

a. Measuring instruments
   Oscilloscope, Normal disc

b. Adjusting procedure
   1. Connect an oscilloscope with TP3 (TE) and TP1 (GND) on the main PC board.
   2. Play the disc.
   3. Short circuit TP5 (TEST) to TP1 (GND).
   4. Adjust R509 for Zero DC offset of the tracking error waveform.

Note: The tracking error waveform should be symmetrical around the 0V level.

(3) Tracking gain adjustment

a. Measuring instruments
   Oscilloscope, Normal disc

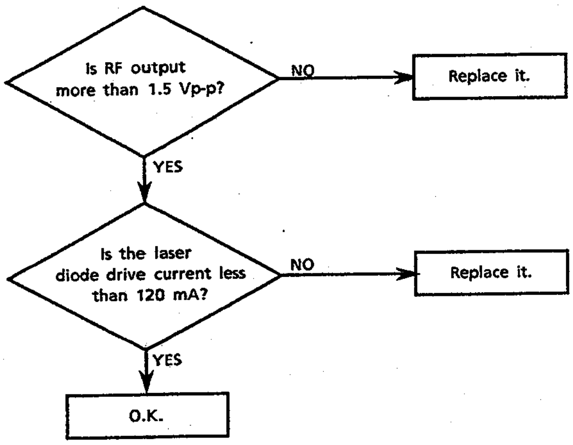
b. Adjusting procedure
   1. Connect an oscilloscope with TP3 (TE) and TP1(GND) on the main PC board.
   2. Play the disc.
   3. Short circuit TP5 (TEST) to TP1 (GND).
   4. Adjust R505 for 2.0 VP-P of tracking error signal.

Maintenance of Laser Pickup

(1) Life of the laser diode

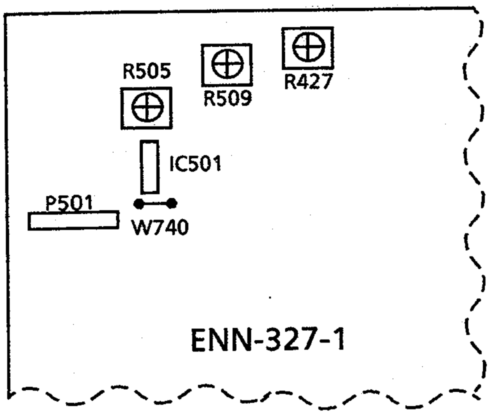
When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output: amplitude of eye pattern) will be low.
2. The drive current required by the laser diode will be increased.
   In such a case, check the life of the laser diode following the flowchart below


Is RF output more than 1.5 Vp-p?
NO
Replace it.
YES
Is the laser diode drive current less than 120 mA?
NO
Replace it.
YES
O.K.

(2) Measurement of laser diode drive current

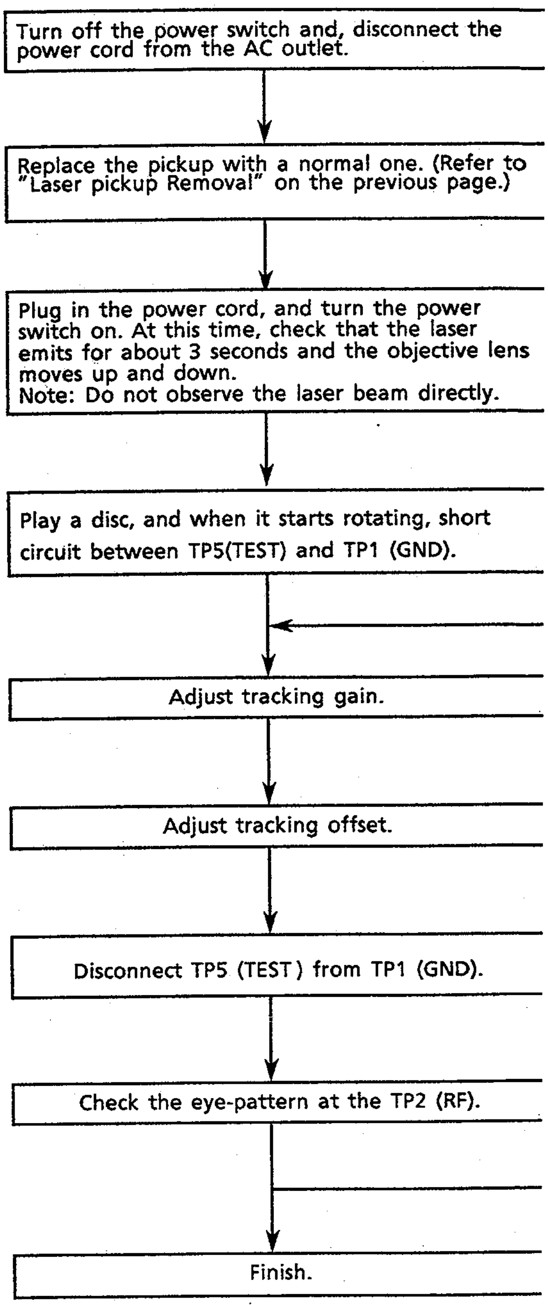
Replace the jump wire (W740) shown below with the resistor (1Ω).
Measure the voltage across the resistor with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired



(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup



Turn off the power switch and, disconnect the power cord from the AC outlet.

Replace the pickup with a normal one. (Refer to "Laser pickup Removal" on the previous page.)

Plug in the power cord, and turn the power switch on. At this time, check that the laser emits for about 3 seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.

Play a disc, and when it starts rotating, short circuit between TP5(TEST) and TP1 (GND).

Adjust tracking gain.

Adjust tracking offset.

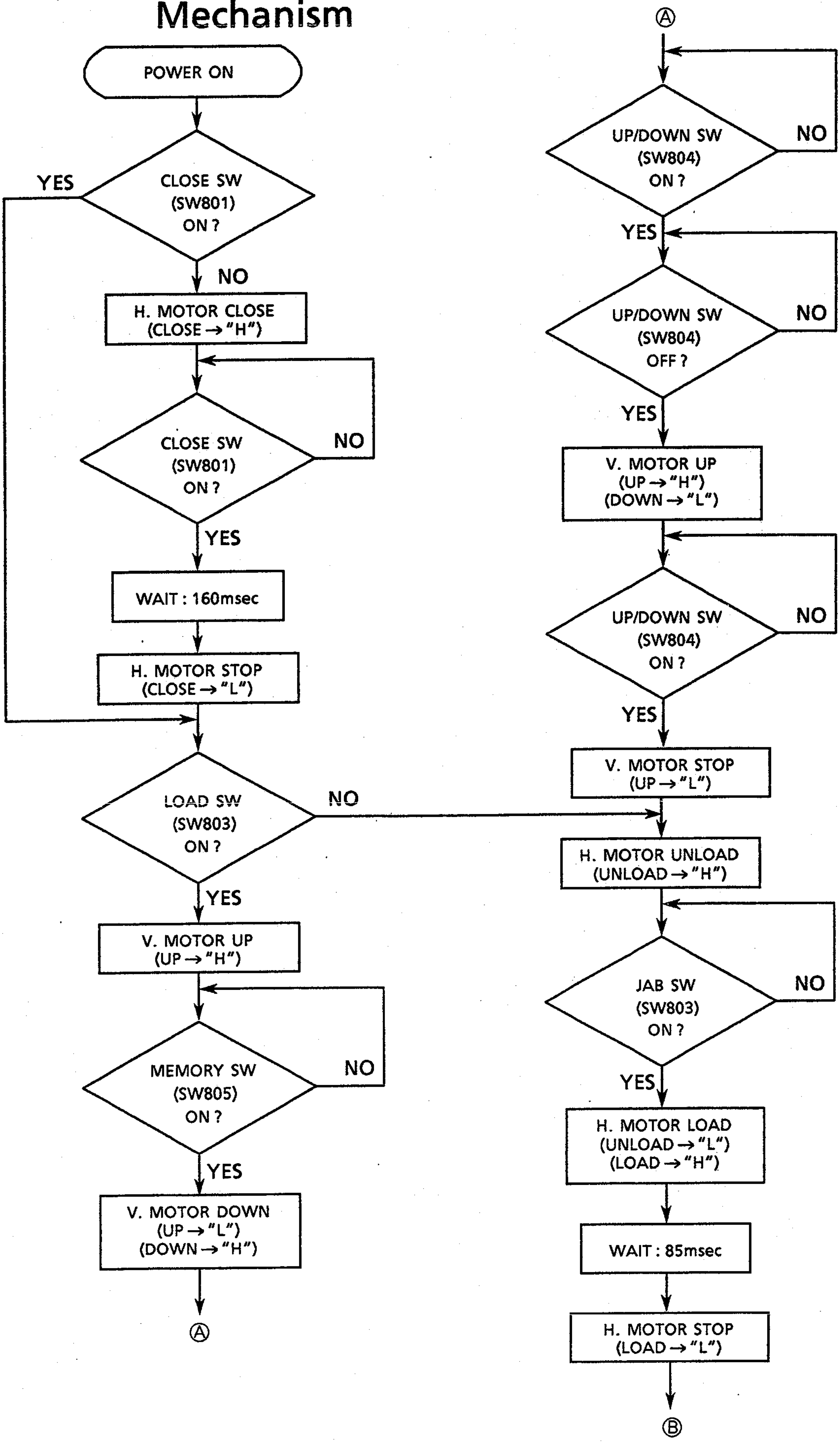
Disconnect TP5 (TEST) from TP1 (GND).

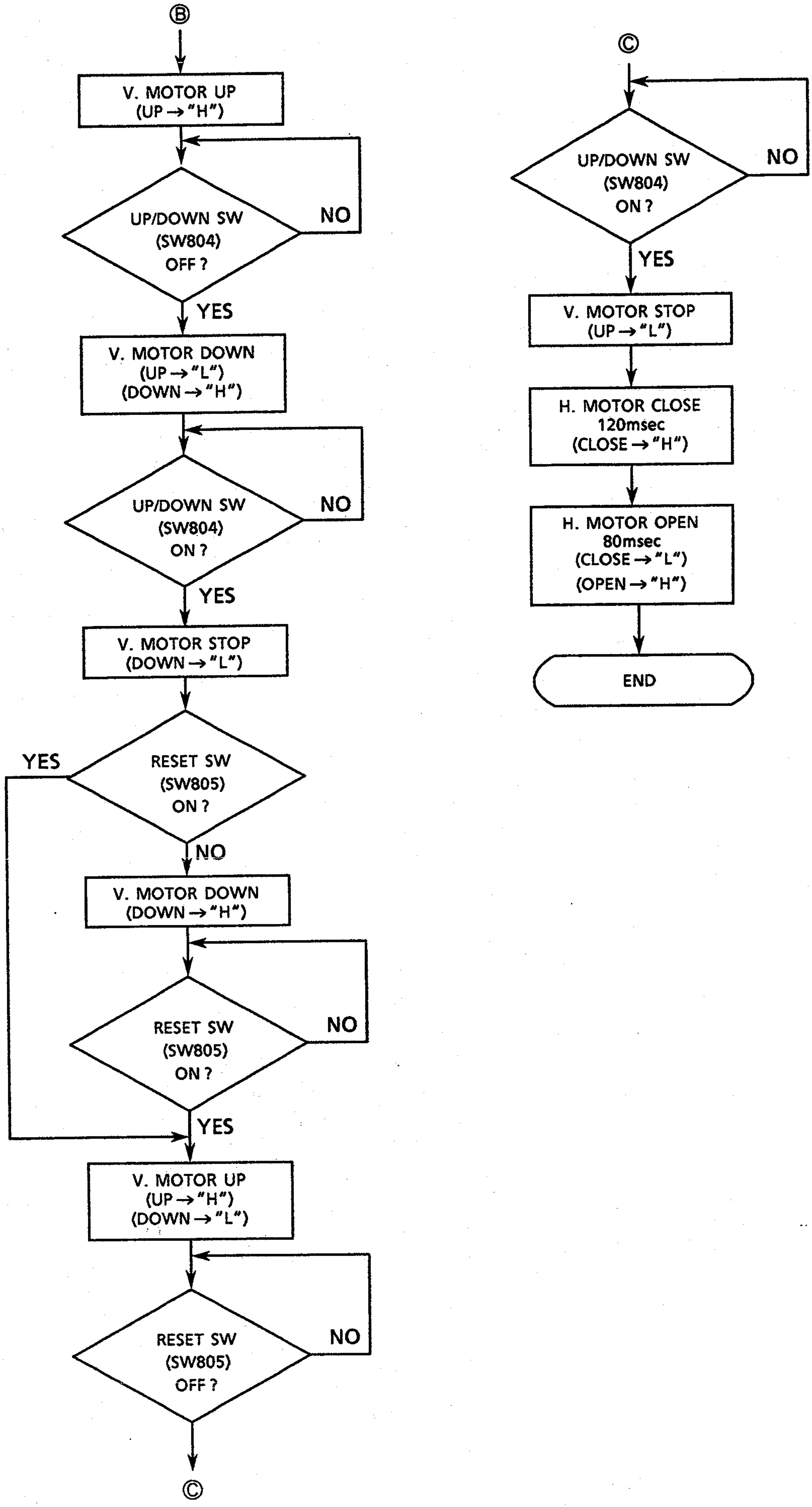
Check the eye-pattern at the TP2 (RF).

Finish.

Note: Since one adjustment may affect other settings, repeat these adjustments a few times.

Initial Operation of Mechanism


POWER ON
CLOSE SW (SW801) ON ?
YES
NO
H. MOTOR CLOSE (CLOSE → "H")
CLOSE SW (SW801) ON ?
NO
YES
WAIT : 160msec
H. MOTOR STOP (CLOSE → "L")
LOAD SW (SW803) ON ?
NO
YES
V. MOTOR UP (UP → "H")
MEMORY SW (SW805) ON ?
NO
YES
V. MOTOR DOWN (UP → "L") (DOWN → "H")
Ⓐ
Ⓐ
UP/DOWN SW (SW804) ON ?
NO
YES
UP/DOWN SW (SW804) OFF ?
NO
YES
V. MOTOR UP (UP → "H") (DOWN → "L")
UP/DOWN SW (SW804) ON ?
NO
YES
V. MOTOR STOP (UP → "L")
H. MOTOR UNLOAD (UNLOAD → "H")
JAB SW (SW803) ON ?
NO
YES
H. MOTOR LOAD (UNLOAD → "L") (LOAD → "H")
WAIT : 85msec
H. MOTOR STOP (LOAD → "L")
Ⓑ


Ⓑ
V. MOTOR UP
(UP → "H")
UP/DOWN SW
(SW804)
OFF ?
NO
YES
V. MOTOR DOWN
(UP → "L")
(DOWN → "H")
UP/DOWN SW
(SW804)
ON ?
NO
YES
V. MOTOR STOP
(DOWN → "L")
YES
RESET SW
(SW805)
ON ?
NO
V. MOTOR DOWN
(DOWN → "H")
RESET SW
(SW805)
ON ?
NO
YES
V. MOTOR UP
(UP → "H")
(DOWN → "L")
RESET SW
(SW805)
OFF ?
NO
Ⓒ
Ⓒ
UP/DOWN SW
(SW804)
ON ?
NO
YES
V. MOTOR STOP
(UP → "L")
H. MOTOR CLOSE
120msec
(CLOSE → "H")
H. MOTOR OPEN
80msec
(CLOSE → "L")
(OPEN → "H")
END

Operation check by each switch.

SW801 : Single tray open / close detect switch.
When a single tray is ejected, the open signal is "L"and when it is closed, the close signal is "L"

SW802 : Magazine in switch.
When a magazine is inserted, the switch is turned on.

SW803 : JAB switch.
When drive plate comes toward, the switch is turned on. (The switch is turned on momentarily.)

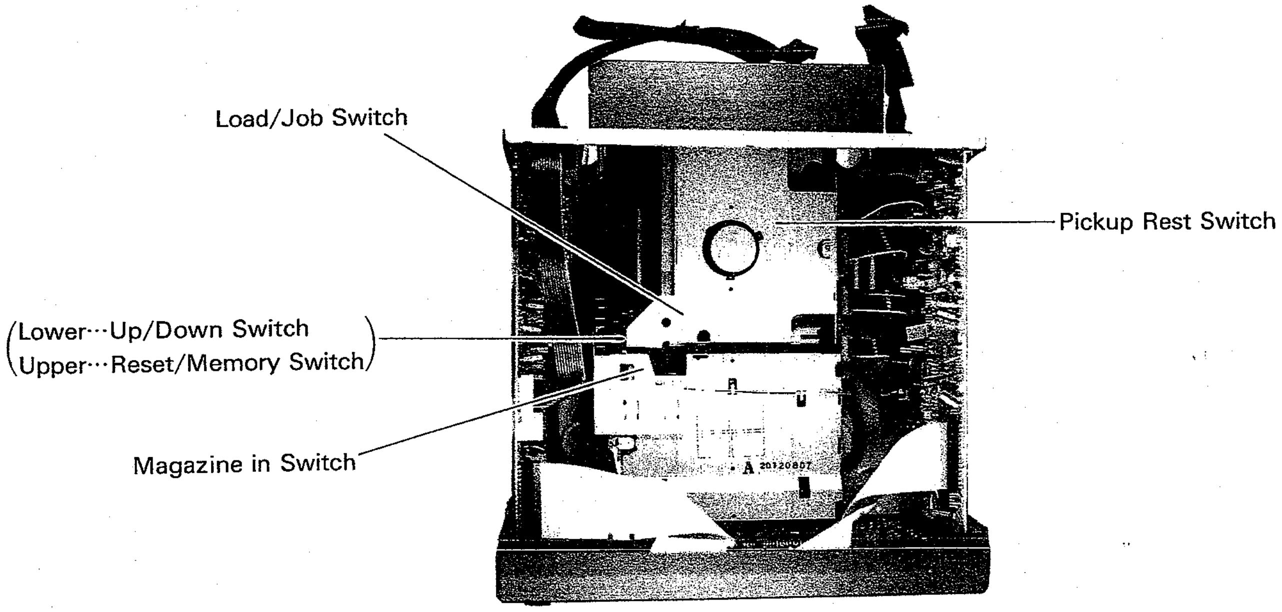
SW803 : Tray load switch.
When the tray of a disc is loaded, the switch is turned on.

SW804 : UP/DOWN switch.
When the mecmanism goes up or down, this sw turns on and off alternately.

SW805 : Reset switch.
When the mechanism comes to the point under the initial position,the switch is turned on.

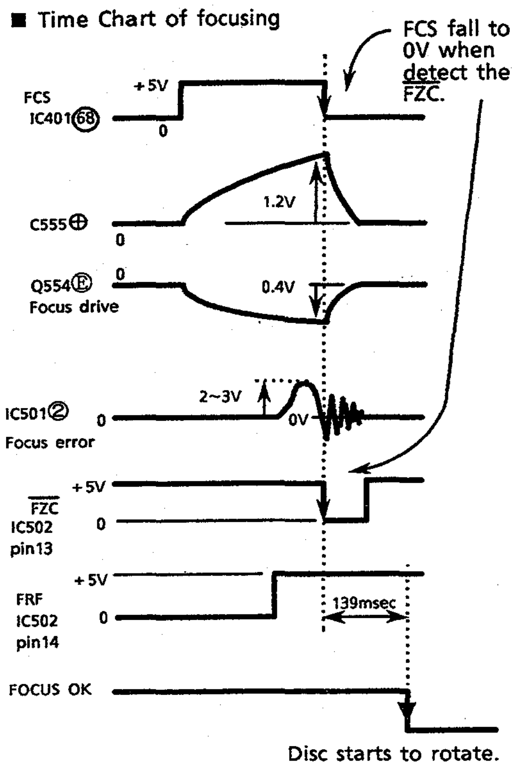
SW805 : Memory switch.
When the power is off in playing a disc, and on again, the switch detect which height the tray should be returned.

SW807 : Pickup rest switch.
When pickup comes to the initial position, the switch is turned on.


Load/Job Switch
Pickup Rest Switch
Lower···Up/Down Switch
Upper···Reset/Memory Switch
Magazine in Switch
A 20120807

Flow of Functional Operation Until TOC is Read

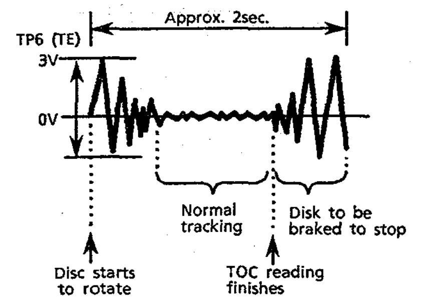
■ Time Chart of focusing



- When the lens moves up and down in a 2-seconds interval, FZC is not output.
- When the lens moves up and down in less than 1-second, FRF is not output or the focus servo loop is abnormal.

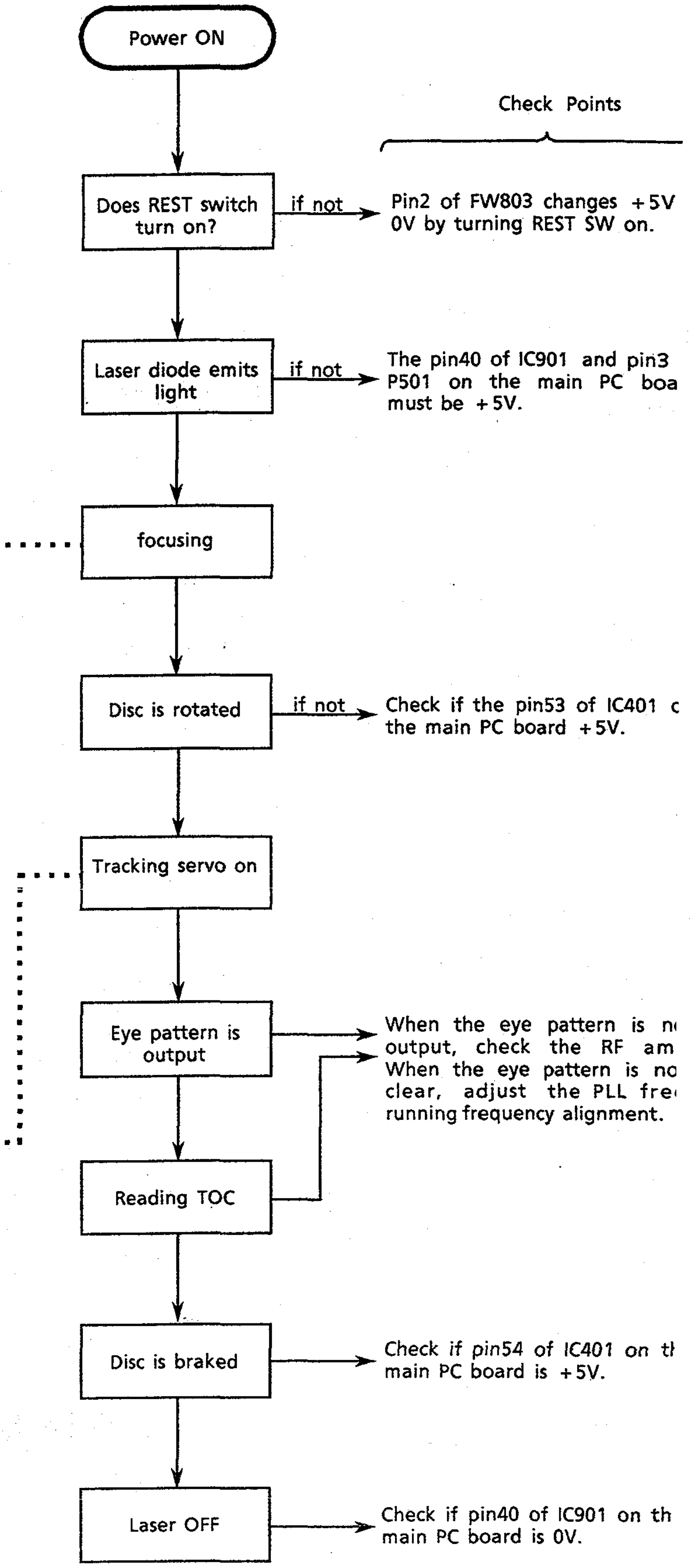
Fig-1

■ Tracking error waveform at TOC reading



- Check the tracking offset and align it to 0.

Fig-2


Power ON
Check Points
Does REST switch turn on?
if not
Laser diode emits light
if not
focusing
Disc is rotated
if not
Tracking servo on
Eye pattern is output
Reading TOC
Disc is braked
Laser OFF

Pin2 of FW803 changes +5V 0V by turning REST SW on.

The pin40 of IC901 and pin3 P501 on the main PC boa must be +5V.

Check if the pin53 of IC401 c the main PC board +5V.

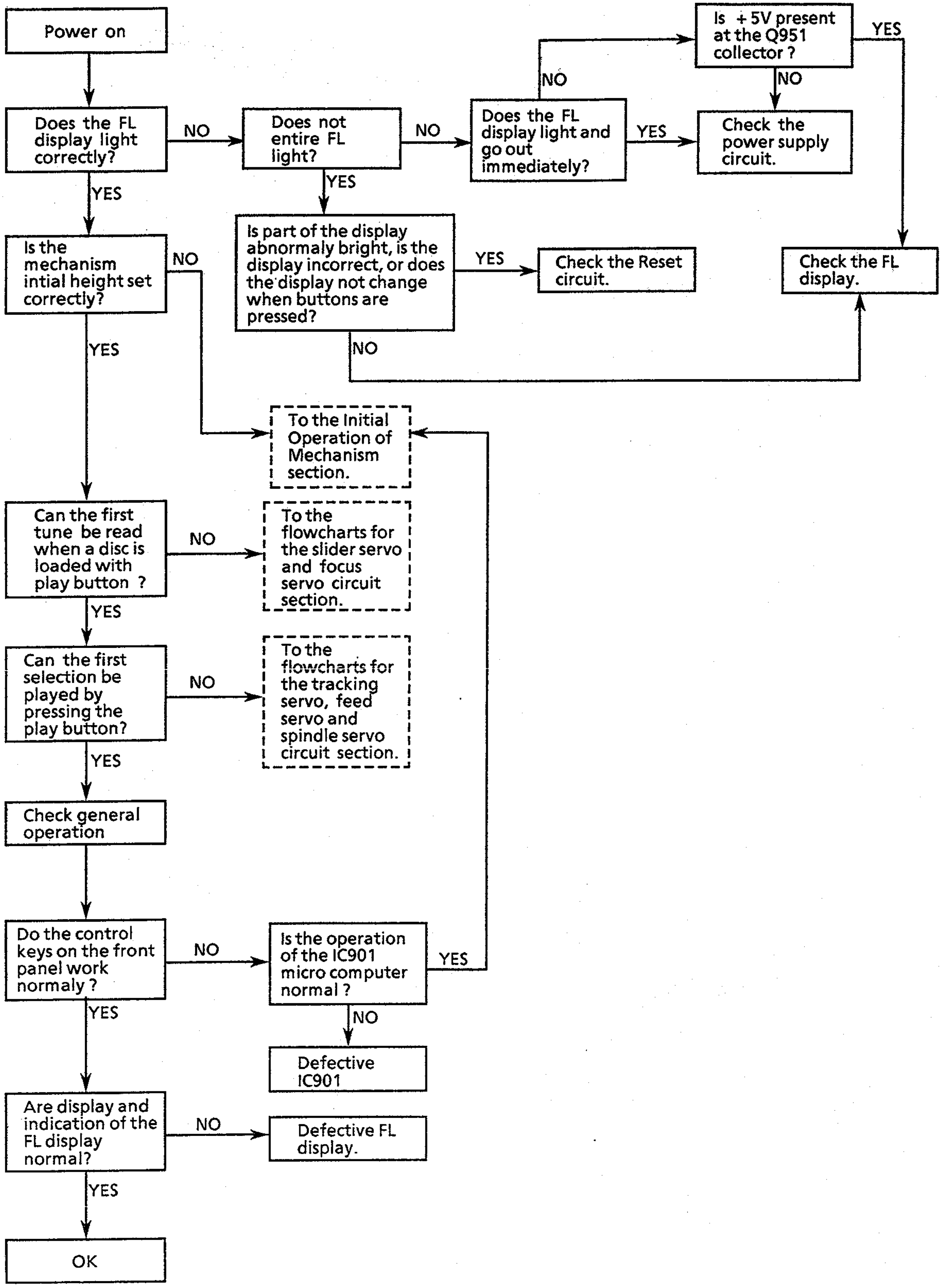
When the eye pattern is n output, check the RF am When the eye pattern is no clear, adjust the PLL fre running frequency alignment.

Check if pin54 of IC401 on t main PC board is +5V.

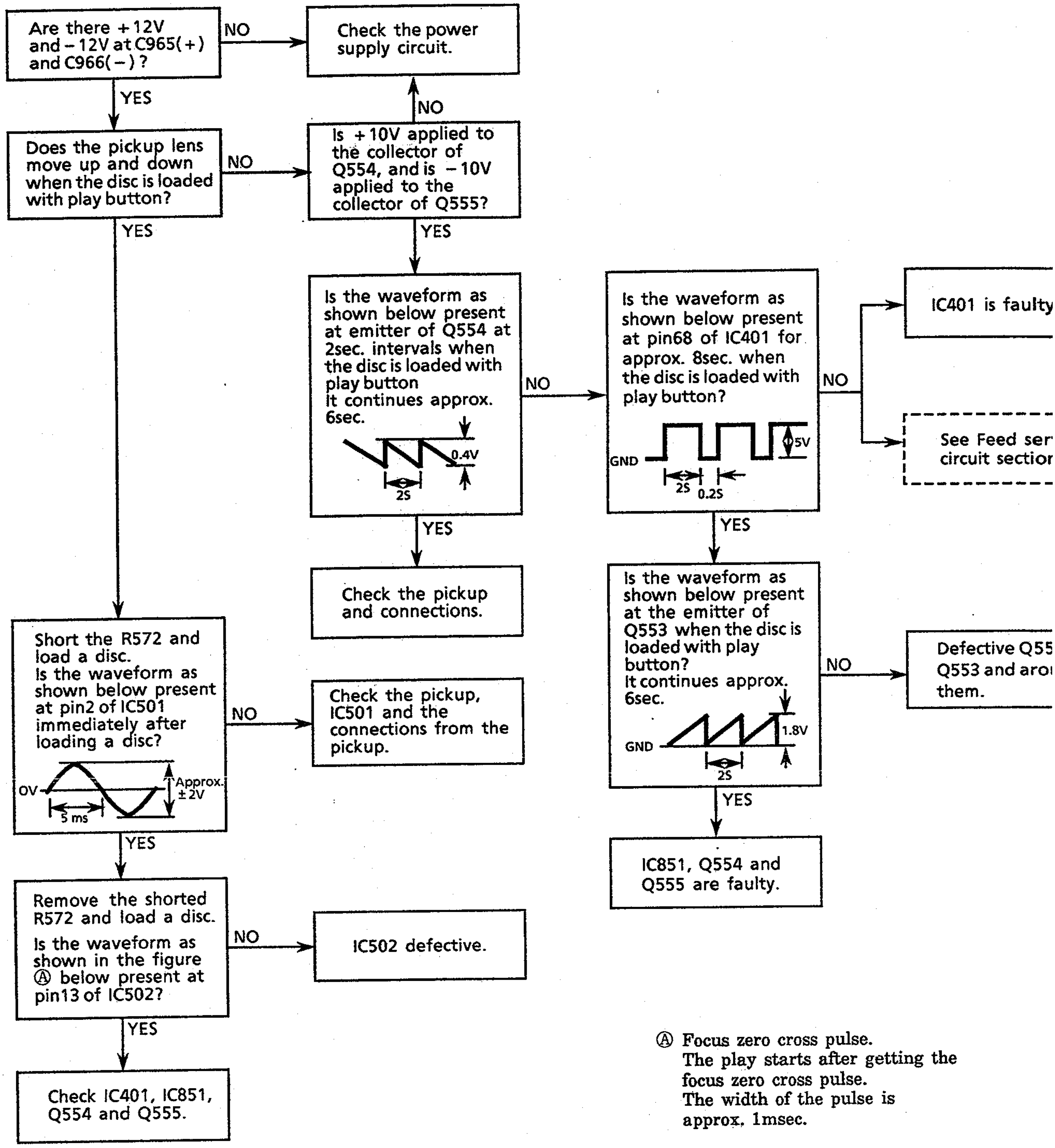
Check if pin40 of IC901 on th main PC board is 0V.

Troubleshooting

The following flowchart shows each circuit's condition about from "power on" until "ready to play".


Power on
Does the FL display light correctly?
NO
Does not entire FL light?
NO
Does the FL display light and go out immediately?
NO
Is +5V present at the Q951 collector ?
YES
NO
YES
Check the power supply circuit.
YES
Is part of the display abnormaly bright, is the display incorrect, or does the display not change when buttons are pressed?
YES
Check the Reset circuit.
NO
Check the FL display.
YES
Is the mechanism intial height set correctly?
NO
To the Initial Operation of Mechanism section.
YES
Can the first tune be read when a disc is loaded with play button ?
NO
To the flowcharts for the slider servo and focus servo circuit section.
YES
Can the first selection be played by pressing the play button?
NO
To the flowcharts for the tracking servo, feed servo and spindle servo circuit section.
YES
Check general operation
Do the control keys on the front panel work normaly ?
NO
Is the operation of the IC901 micro computer normal ?
YES
NO
Defective IC901
YES
Are display and indication of the FL display normal?
NO
Defective FL display.
YES
OK

Focus servo circuit section


Are there +12V and −12V at C965(+) and C966(−)?

NO: Check the power supply circuit.

YES: Does the pickup lens move up and down when the disc is loaded with play button?

NO: Is +10V applied to the collector of Q554, and is −10V applied to the collector of Q555?

NO: Check the power supply circuit.

YES: Is the waveform as shown below present at emitter of Q554 at 2sec. intervals when the disc is loaded with play button It continues approx. 6sec.

YES: Check the pickup and connections.

NO: Is the waveform as shown below present at pin68 of IC401 for approx. 8sec. when the disc is loaded with play button?

NO: IC401 is faulty

See Feed ser circuit sectio

YES: Is the waveform as shown below present at the emitter of Q553 when the disc is loaded with play button? It continues approx. 6sec.

NO: Defective Q55 Q553 and aro them.

YES: IC851, Q554 and Q555 are faulty.

YES (pickup lens moves): Short the R572 and load a disc. Is the waveform as shown below present at pin2 of IC501 immediately after loading a disc?

NO: Check the pickup, IC501 and the connections from the pickup.

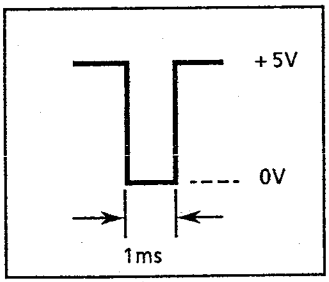
YES: Remove the shorted R572 and load a disc. Is the waveform as shown in the figure Ⓐ below present at pin13 of IC502?

NO: IC502 defective.

YES: Check IC401, IC851, Q554 and Q555.

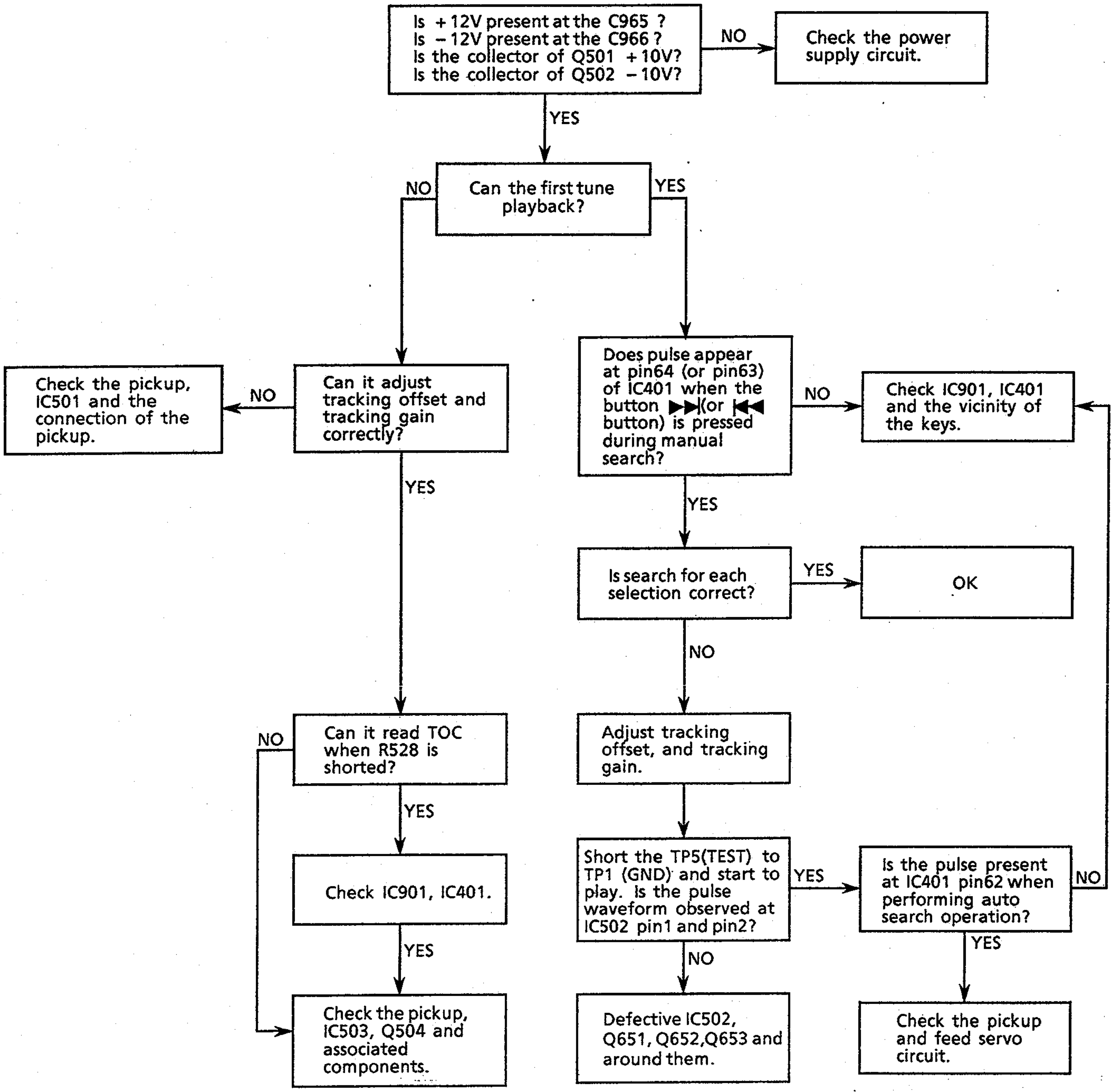
Ⓐ Focus zero cross pulse.
The play starts after getting the focus zero cross pulse.
The width of the pulse is approx. 1msec.

IC502 Pin13

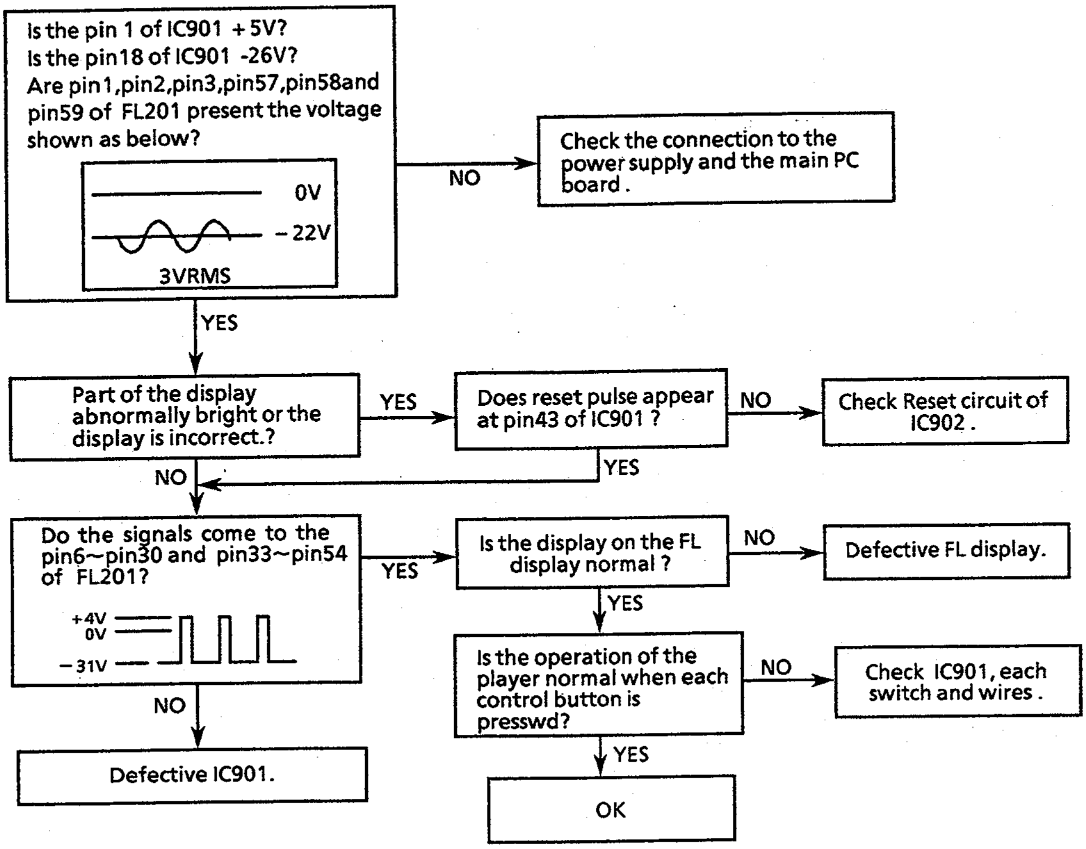


50ms / div 1V / div

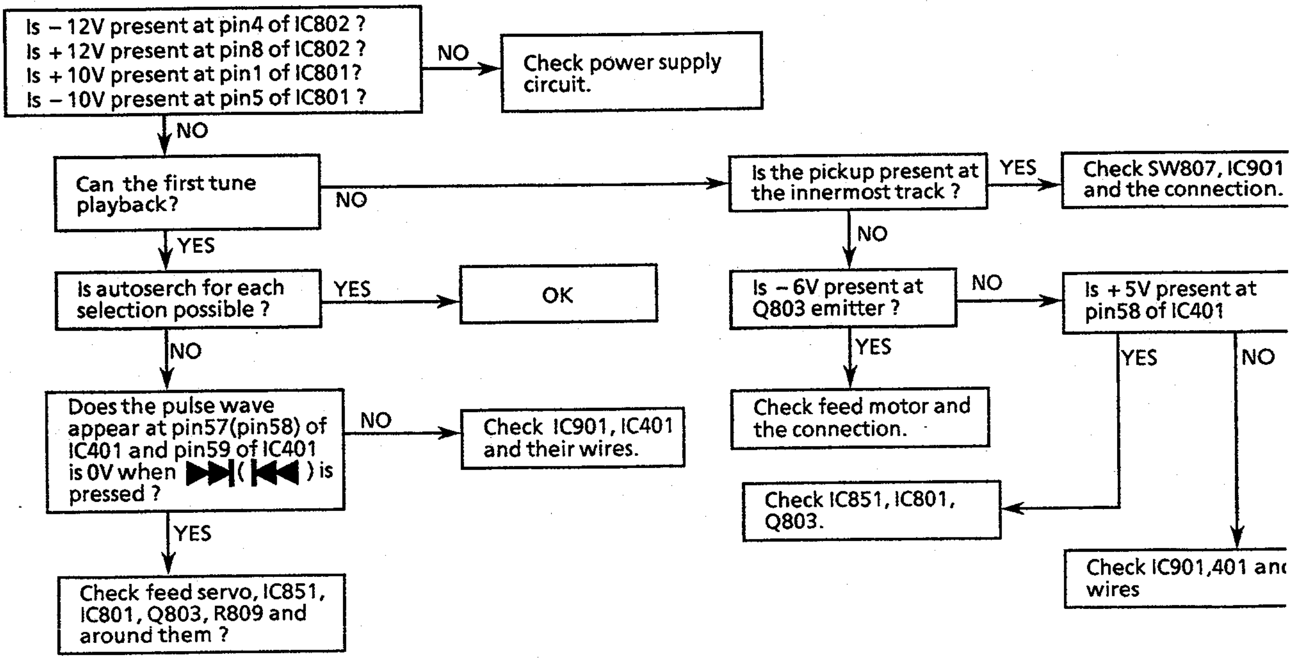
Tracking servo circuit section


Is +12V present at the C965 ?
Is −12V present at the C966 ?
Is the collector of Q501 +10V?
Is the collector of Q502 −10V?
NO
Check the power supply circuit.
YES
Can the first tune playback?
NO
YES
Can it adjust tracking offset and tracking gain correctly?
NO
Check the pickup, IC501 and the connection of the pickup.
YES
Does pulse appear at pin64 (or pin63) of IC401 when the button ▶▶|(or |◀◀ button) is pressed during manual search?
NO
Check IC901, IC401 and the vicinity of the keys.
YES
Is search for each selection correct?
YES
OK
NO
Adjust tracking offset, and tracking gain.
Short the TP5(TEST) to TP1 (GND) and start to play. Is the pulse waveform observed at IC502 pin1 and pin2?
YES
Is the pulse present at IC401 pin62 when performing auto search operation?
NO
YES
Check the pickup and feed servo circuit.
NO
Defective IC502, Q651, Q652, Q653 and around them.
Can it read TOC when R528 is shorted?
NO
YES
Check IC901, IC401.
YES
Check the pickup, IC503, Q504 and associated components.

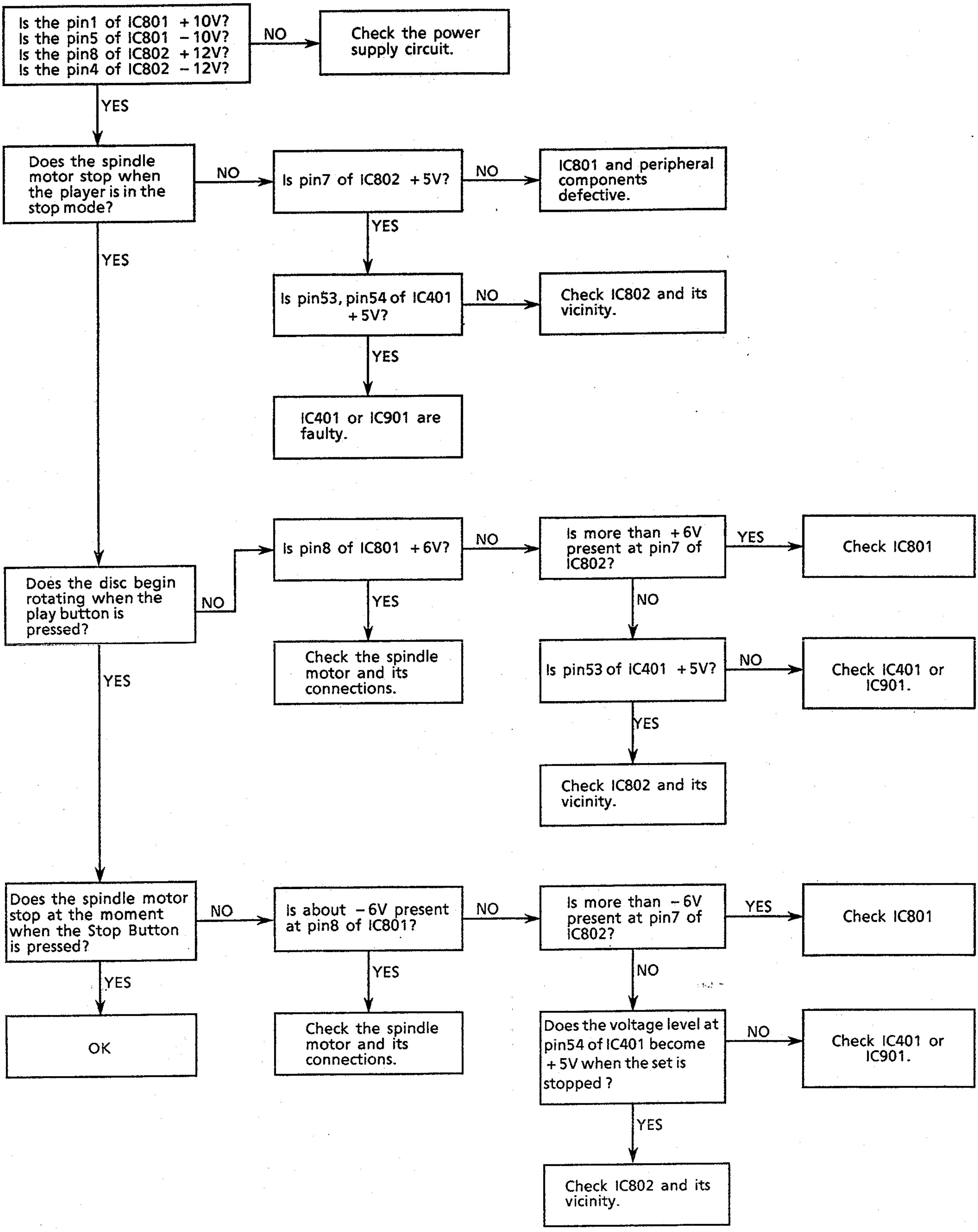
Front circuit Section


Is the pin 1 of IC901 +5V?
Is the pin18 of IC901 -26V?
Are pin1,pin2,pin3,pin57,pin58and pin59 of FL201 present the voltage shown as below?
0V
-22V
3VRMS
NO
Check the connection to the power supply and the main PC board.
YES
Part of the display abnormally bright or the display is incorrect.?
YES
Does reset pulse appear at pin43 of IC901 ?
NO
Check Reset circuit of IC902.
YES
NO
Do the signals come to the pin6~pin30 and pin33~pin54 of FL201?
+4V
0V
-31V
YES
Is the display on the FL display normal ?
NO
Defective FL display.
YES
Is the operation of the player normal when each control button is presswd?
NO
Check IC901, each switch and wires.
YES
OK
NO
Defective IC901.

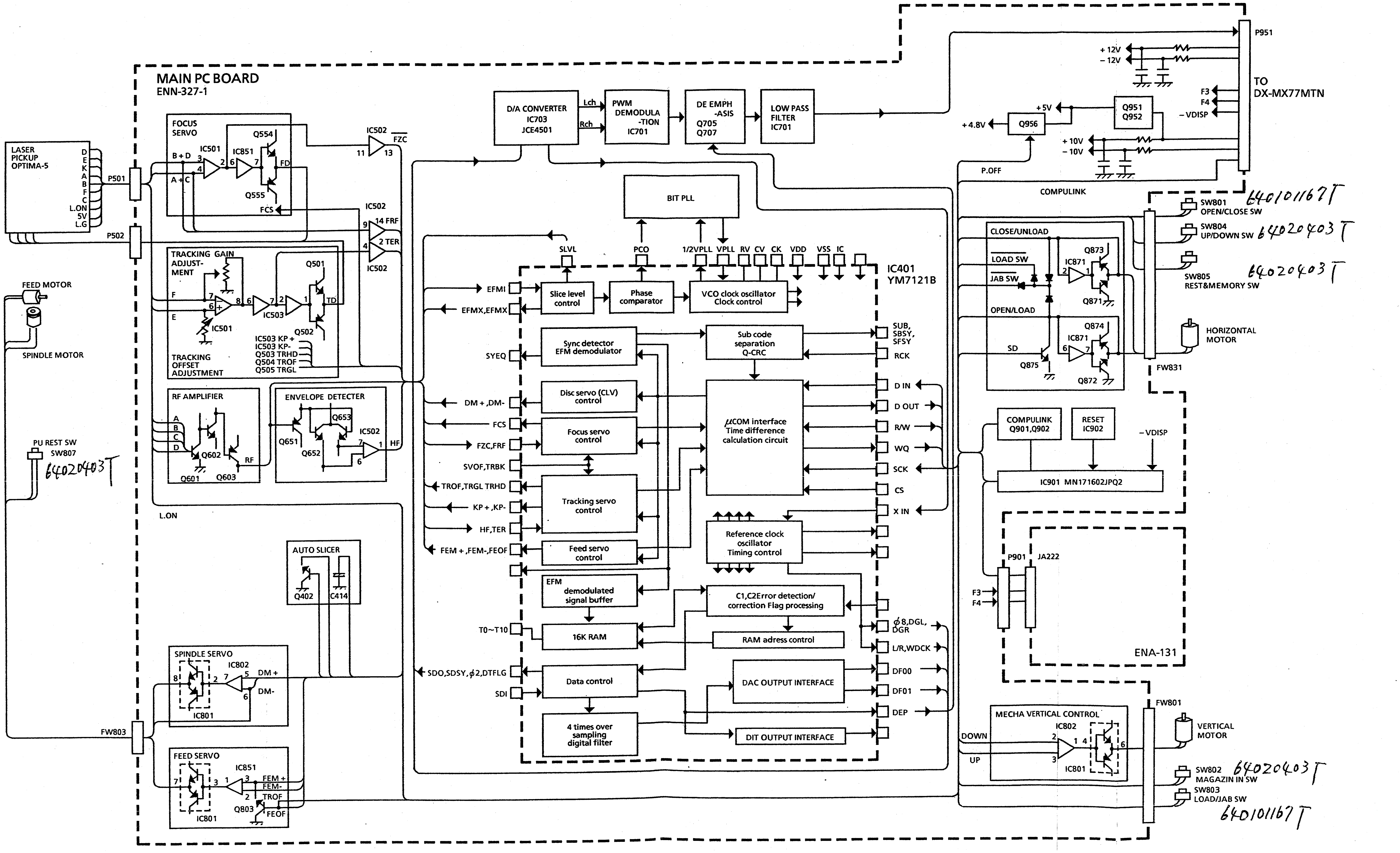
Feed servo circuit section


Is -12V present at pin4 of IC802 ?
Is +12V present at pin8 of IC802 ?
Is +10V present at pin1 of IC801?
Is -10V present at pin5 of IC801 ?
NO
Check power supply circuit.
NO
Can the first tune playback?
NO
Is the pickup present at the innermost track ?
YES
Check SW807, IC901 and the connection.
NO
Is -6V present at Q803 emitter ?
NO
Is +5V present at pin58 of IC401
YES
NO
YES
Check feed motor and the connection.
Check IC851, IC801, Q803.
Check IC901,401 an
wires
YES
Is autoserch for each selection possible ?
YES
OK
NO
Does the pulse wave appear at pin57(pin58) of IC401 and pin59 of IC401 is 0V when ▶▶|(|◀◀) is pressed ?
NO
Check IC901, IC401 and their wires.
YES
Check feed servo, IC851, IC801, Q803, R809 and around them ?

Spindle servo circuit section

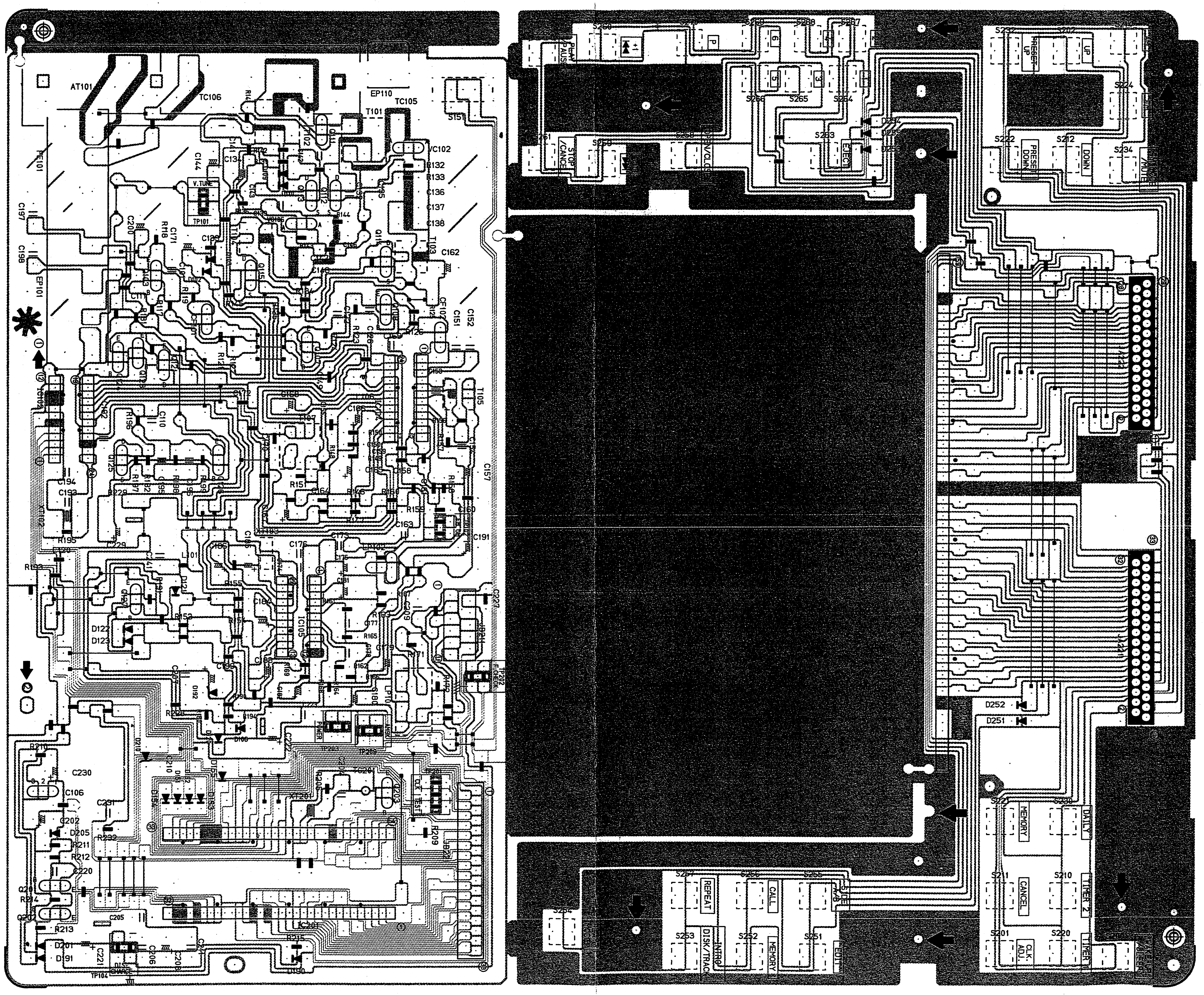

Is the pin1 of IC801 +10V?
Is the pin5 of IC801 −10V?
Is the pin8 of IC802 +12V?
Is the pin4 of IC802 −12V?
NO
Check the power supply circuit.
YES
Does the spindle motor stop when the player is in the stop mode?
NO
Is pin7 of IC802 +5V?
NO
IC801 and peripheral components defective.
YES
Is pin53, pin54 of IC401 +5V?
NO
Check IC802 and its vicinity.
YES
IC401 or IC901 are faulty.
YES
Does the disc begin rotating when the play button is pressed?
NO
Is pin8 of IC801 +6V?
NO
Is more than +6V present at pin7 of IC802?
YES
Check IC801
YES
Check the spindle motor and its connections.
NO
Is pin53 of IC401 +5V?
NO
Check IC401 or IC901.
YES
Check IC802 and its vicinity.
YES
Does the spindle motor stop at the moment when the Stop Button is pressed?
NO
Is about −6V present at pin8 of IC801?
NO
Is more than −6V present at pin7 of IC802?
YES
Check IC801
YES
OK
YES
Check the spindle motor and its connections.
NO
Does the voltage level at pin54 of IC401 become +5V when the set is stopped ?
NO
Check IC401 or IC901.
YES
Check IC802 and its vicinity.

Connection Diagram

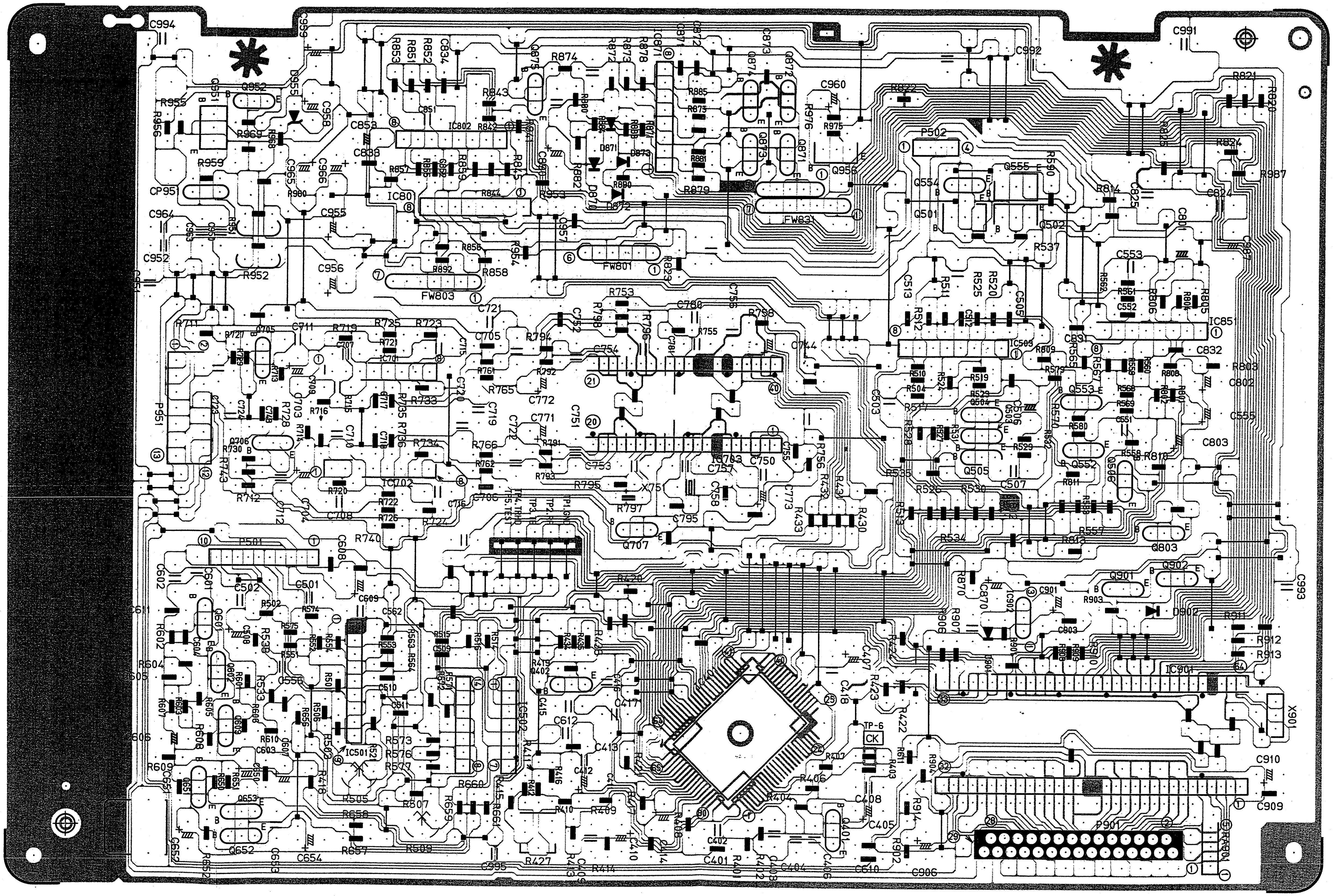

MAIN PC BOARD
ENN-327-1
LASER PICKUP OPTIMA-5
D E K A B F C L.ON 5V L.G
P501
P502
FEED MOTOR
SPINDLE MOTOR
PU REST SW
SW807
64020403T
FOCUS SERVO
B+D
A+C
IC501
IC851
Q554
Q555
FD
FCS
IC502
FZC
14 FRF
2 TER
TRACKING GAIN ADJUSTMENT
F
E
IC501
IC503
Q501
Q502
TD
IC503 KP+
IC503 KP-
Q503 TRHD
Q504 TROF
Q505 TRGL
TRACKING OFFSET ADJUSTMENT
RF AMPLIFIER
Q601
Q602
Q603
RF
ENVELOPE DETECTER
Q651
Q652
Q653
HF
L.ON
AUTO SLICER
Q402
C414
SPINDLE SERVO
IC802
IC801
DM+
DM-
FW803
FEED SERVO
IC851
IC801
Q803
FEM+
FEM-
TROF
FEOF
D/A CONVERTER IC703 JCE4501
Lch
Rch
PWM DEMODULA-TION IC701
DE EMPH-ASIS Q705 Q707
LOW PASS FILTER IC701
BIT PLL
SLVL
PCO
1/2VPLL
VPLL
RV
CV
CK
VDD
VSS
IC
IC401 YM7121B
EFMI
EFMX,EFMX
SYEQ
DM+,DM-
FCS
FZC,FRF
SVOF,TRBK
TROF,TRGL TRHD
KP+,KP-
HF,TER
FEM+,FEM-,FEOF
T0~T10
SDO,SDSY,ϕ2,DTFLG
SDI
Slice level control
Phase comparator
VCO clock oscillator Clock control
Sync detector EFM demodulator
Sub code separation Q-CRC
Disc servo (CLV) control
Focus servo control
μCOM interface Time difference calculation circuit
Tracking servo control
Reference clock oscillator Timing control
Feed servo control
EFM demodulated signal buffer
C1,C2 Error detection/ correction Flag processing
16K RAM
RAM adress control
Data control
DAC OUTPUT INTERFACE
4 times over sampling digital filter
DIT OUTPUT INTERFACE
SUB, SBSY, SFSY
RCK
D IN
D OUT
R/W
WQ
SCK
CS
X IN
ϕ8,DGL, DGR
L/R,WDCK
DF00
DF01
DEP
P951
TO DX-MX77MTN
+12V
-12V
F3
F4
-VDISP
+5V
+4.8V
Q956
Q951 Q952
+10V
-10V
P.OFF
COMPULINK
SW801 OPEN/CLOSE SW
640101167T
SW804 UP/DOWN SW
64020403T
SW805 REST&MEMORY SW
64020403T
HORIZONTAL MOTOR
CLOSE/UNLOAD
LOAD SW
JAB SW
OPEN/LOAD
SD
IC871
Q873
Q871
Q874
Q875
Q872
FW831
COMPULINK Q901,Q902
RESET IC902
-VDISP
IC901 MN171602JPQ2
P901
JA222
F3
F4
ENA-131
MECHA VERTICAL CONTROL
DOWN
UP
IC802
IC801
FW801
VERTICAL MOTOR
SW802 MAGAZIN IN SW
64020403T
SW803 LOAD/JAB SW
640101167T

Printed Circuit Board

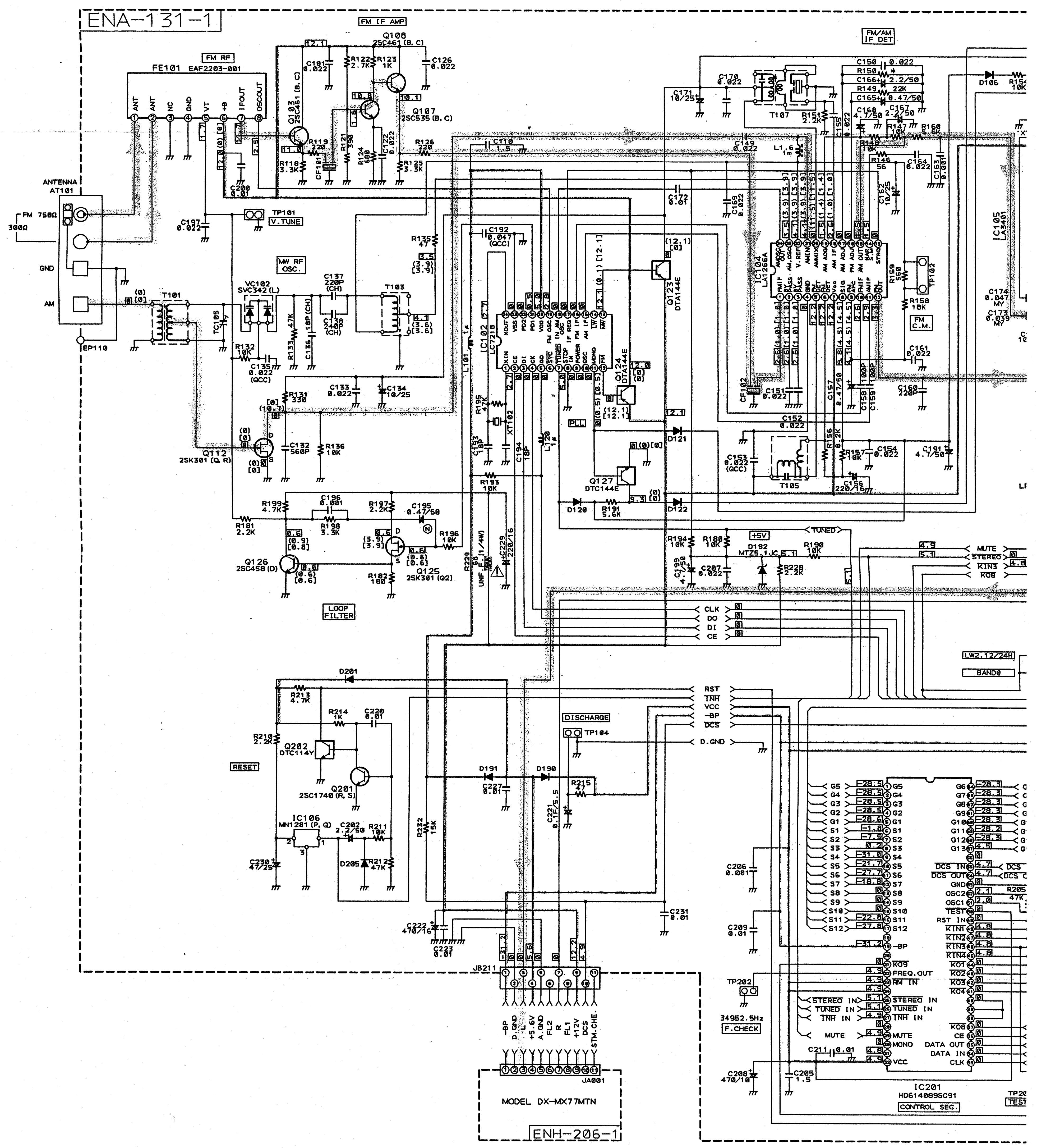
■ Tuner PC Board (ENA-131)

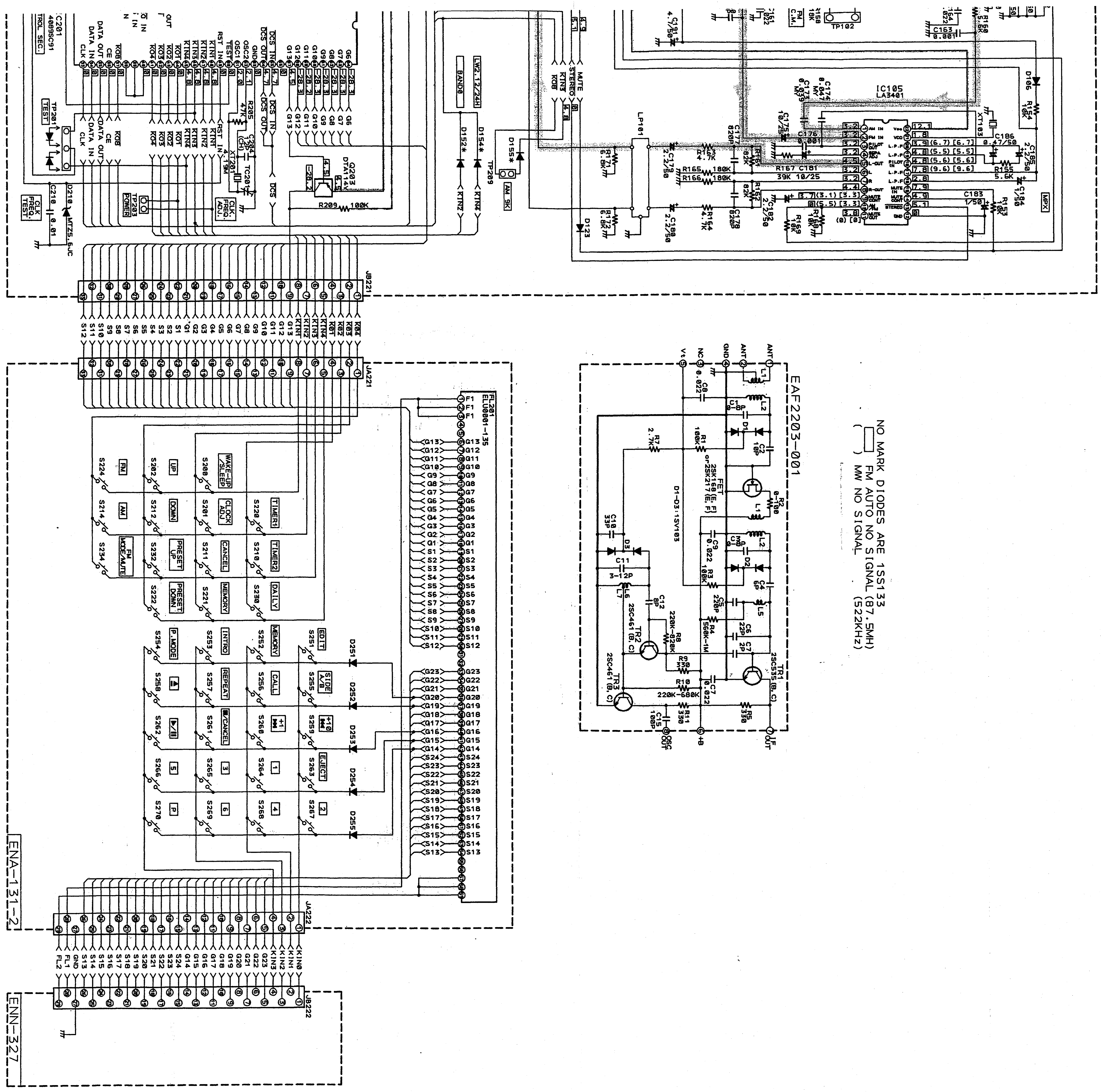

AT101
TC106
EP110
TC105
T101
VC102
R132
R133
C136
C137
C138
C162
EP101
C197
C198
V.TUNE
TP101
S151
T105
C157
C191
C194
C193
R195
R193
D122
D123
C230
C106
C231
C202
D205
R211
R212
C220
R214
R213
D201
D191
TP102
C221
C206
C208
R209
D252
D251
S260
S259
S258
S257
S261
S262
S263
S264
S265
S266
S232
S207
S224
S222
S212
S234
S221
S209
S211
S210
S201
S220
S257
S256
S255
S253
S252
S251
PLAY/PAUSE
STOP/CANCEL
EJECT
PRESET UP
UP
PRESET DOWN
DOWN
MUTE
MEMORY
DAILY
CANCEL
TIMER 2
CLK. ADJ.
TIMER 1
REPEAT
CALL
DISK/TRACK
INTRO
MEMORY
EDIT

■ CD PC Board (ENN-327)


IC802
IC801
IC703
IC702
IC503
IC851
IC901
IC501
IC502
FW801
FW803
FW831
P501
P502
P901
P951
CP951
X751
X901
TP-6
CK
Q952
Q956
Q501
Q502
Q505
Q552
Q553
Q554
Q555
Q707
Q803
Q901
Q902
Q401
Q402
Q652
D902
R427
C995
C994
C991
C992
C993

■ Tuner Section

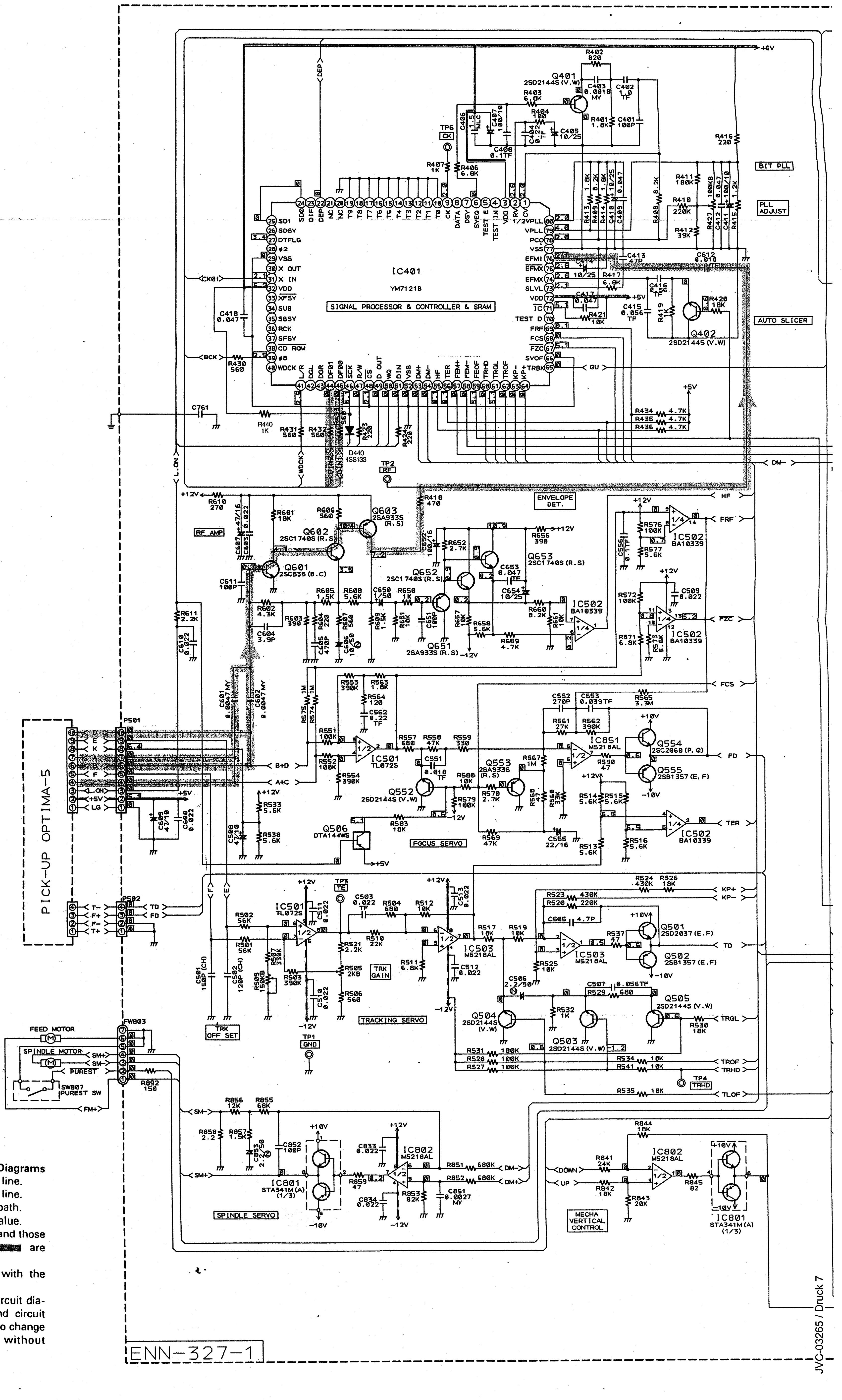

ENA-131-1
FM RF
FE101 EAF2203-001
ANT
ANT
NC
GND
VT
+B
IFOUT
OSCOUT
ANTENNA AT101
FM 75Ω
300Ω
GND
AM
EP110
T101
TC105
VC102 SVC342(L)
MW RF OSC.
TP101 V.TUNE
C197 0.022
C200 0.01
R132 10K
C135 0.022 (QCC)
R133 47K
C136 18P(CH)
C137 220P (CH)
C138 240P (CH)
T103
R135 47
Q112 2SK301 (Q, R)
R131 330
C133 0.022
C134 10/25
C132 560P
R136 10K
R199 4.7K
R181 2.2K
C196 0.001
R198 3.3K
R197 2.2K
C195 0.47/50
R196 10K
Q126 2SC458(D)
Q125 2SK301(Q2)
R182 180
LOOP FILTER
FM IF AMP
Q108 2SC461 (B, C)
Q103 2SC461 (B, C)
Q107 2SC535 (B, C)
C101 0.022
R122 2.7K
R123 1K
C126 0.022
R118 3.3K
R119 220
CF101
R121 390
R124 680
C122 0.022
R126 220
R125 3.3K
C110
C192 0.047 (QCC)
L101 1μ
IC102 LC7218
XIN CE DI CK DO SYC TUNED STOP IN POWER OSC MONO FM
XOUT VSS PD2 PD1 VDD FM OSC IN AM OSC IF REQ FM IF AM IF LW MW
PLL
R195 47K
XT102
C193 18P
C194 18P
L120 1μ
R193 10K
R229 68 UNF F.(1/4W)
C229 220/16
Q124 DTA144E
Q127 DTC144E
Q123 DTA144E
D120
R191 5.6K
D121
D122
C172 0.01
C169 0.022
C171 10/25
C170 0.022
T107
R151 2.2K
C149 0.022
L1.6 1m
C155 0.022
FM/AM IF DET
C150 0.022
R150
C166 2.2/50
R149 22K
C165 0.47/50
C168 4.7/50
C167 2.2/50
R147 10K
R160 5.6K
R148 10K
R146 56
C164 0.022
C163 0.001
C162 10/25
IC104 LA1266A
CF102
C151 0.022
C157 0.47/50
C158 100P
C159 100P
R159 560
TP102
R158 18K
FM C.M.
C161 0.022
C160 220P
C152 0.022
C153 0.022 (QCC)
T105
R156 8.2K
R157 10K
C154 0.022
C156 220/16
C191 4.7/50
D106
R154 10K
IC105 LA3401
C174 0.047 MY
C173 0.039 MY
R194 10K
R180 10K
+5V
D192 MTZ5.1JC
R190 10K
C199 4.7/50
C207 0.022
R228 2.2K
TUNED
MUTE
STEREO
KIN3
KO8
CLK
DO
DI
CE
LW2.12/24H
BAND0
RST
TNH
VCC
-BP
DCS
D.GND
DISCHARGE
TP104
D201
R213 4.7K
R214 1K
C220 0.01
R210 2.2K
Q202 DTC114Y
RESET
Q201 2SC1740(R, S)
IC106 MN1281 (P, Q)
C202 2.2/50
R211 10K
C230 47/25
D205
R212 47K
D191
D190
C227 0.01
R215 47
C221 0.1F/5.5
R232 15K
C222 470/16
C223 0.01
C231 0.01
JB211
-BP
D.GND
L
+5.6V
A.GND
FL2
R
FL1
+12V
DCS
STM.CHE.
JA001
MODEL DX-MX77MTN
ENH-206-1
C206 0.001
C209 0.01
TP202
34952.5Hz
F.CHECK
C211 0.01
C208 470/10
C205 1.5
IC201 HD614089SC91
CONTROL SEC.
G5 G4 G3 G2 G1 S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12
-BP
KO9
FREQ.OUT
RM IN
STEREO IN
TUNED IN
TNH IN
MUTE
MONO
VCC
G6 G7 G8 G9 G10 G11 G12 G13
DCS IN
DCS OUT
GND
OSC2
OSC1
TEST
RST IN
KIN1 KIN2 KIN3 KIN4
KO1 KO2 KO3 KO4
KO8
CE
DATA OUT
DATA IN
CLK
R205 47K
TP20 TEST


IC201
4099SC91
CONTROL SEC.
IC105
LA3401
LP101
JB221
JA221
FL201
ELU0001-135
JA222
JB222
ENA-131-2
ENN-327
EAF2203-001
TP201 TEST
TP203 POWER
CLK FREQ. ADJ.
CLK FREQ. TEST
BAND0
LW2,12/24H
AM 9K
MPX
WAKE-UP /SLEEP
CLOCK ADJ
TIMER1
TIMER2
CANCEL
DAILY
MEMORY
UP
DOWN
PRESET UP
PRESET DOWN
FM
AM
FM MODE/MUTE
EDIT
SIDE A/B
EJECT
CALL
REPEAT
INTRO
P.MODE
ANT
GND
NC
V+
OSC OUT
+B
IF OUT
FET 2SK161(O,E,F) or 2SK210(E,F)
D1-D3:1SV103
TR1 2SC535(B,C)
TR2 2SC461(B,C)
TR3 2SC461(B,C)

NO MARK DIODES ARE 1SS133
☐ FM AUTO NO SIGNAL (87.5MH)
( ) MW NO SIGNAL (522KHz)

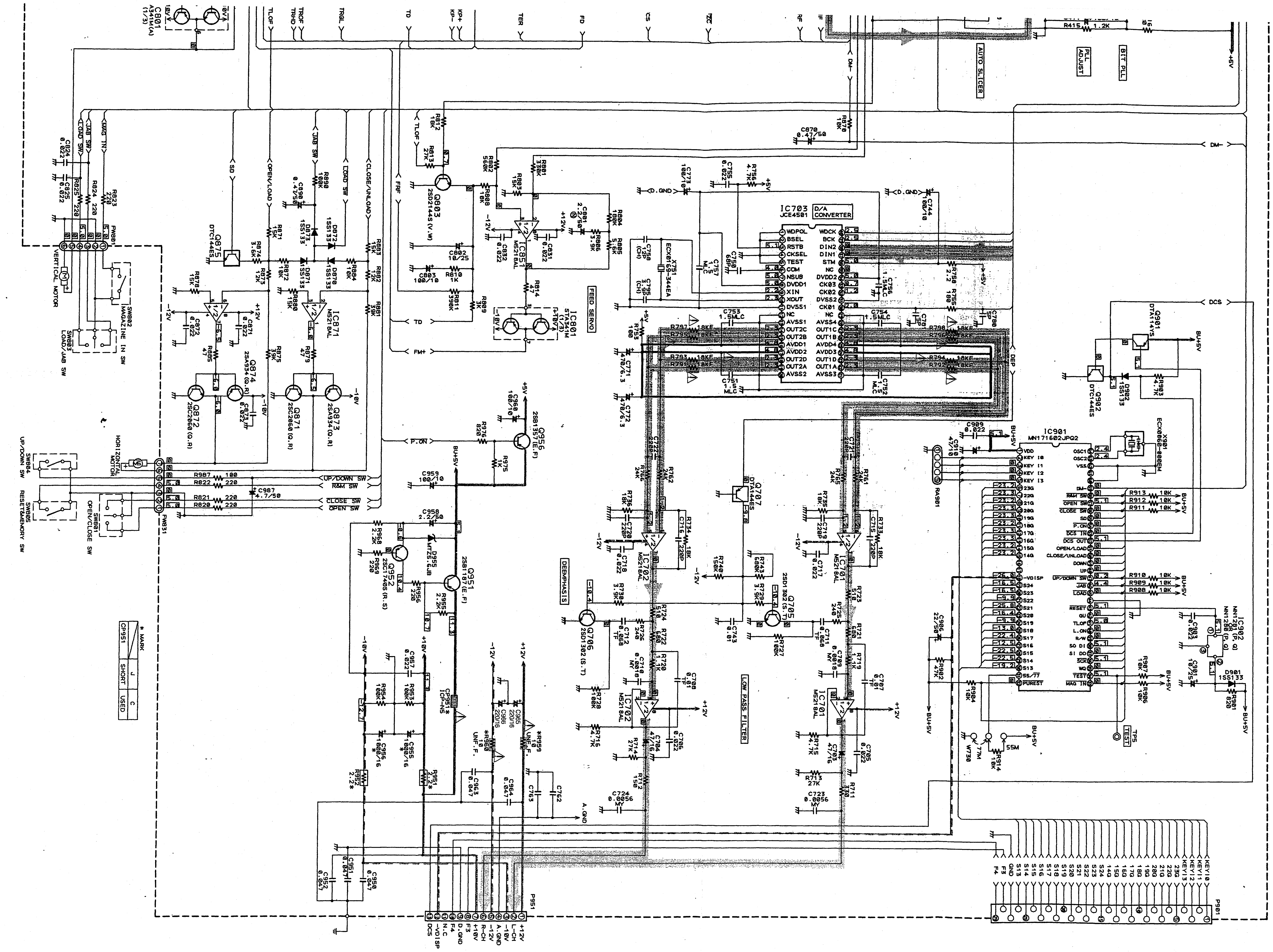
SCHEMATIC DIAGRAM

■ CD Section


IC401
YM7121B
SIGNAL PROCESSOR & CONTROLLER & SRAM
BIT PLL
PLL ADJUST
AUTO SLICER
RF AMP
ENVELOPE DET.
FOCUS SERVO
TRACKING SERVO
TRK GAIN
TRK OFF SET
SPINDLE SERVO
MECHA VERTICAL CONTROL
PICK-UP OPTIMA-5
P501
P502
FW803
FEED MOTOR
SPINDLE MOTOR
PUREST
SW807 PUREST SW
Q401 2SD2144S (V.W)
Q402 2SD2144S (V.W)
Q601 2SC535 (B.C)
Q602 2SC1740S (R.S)
Q603 2SA933S (R.S)
Q651 2SA933S (R.S)
Q652 2SC1740S (R.S)
Q653 2SC1740S (R.S)
IC502 BA10339
IC501 TL072S
IC851 M5218AL
Q554 2SC2060 (P.Q)
Q555 2SB1357 (E.F)
Q553 2SA933S (R.S)
Q552 2SD2144S (V.W)
Q506 DTA144WS
IC503 M5218AL
Q501 2SD2037 (E.F)
Q502 2SB1357 (E.F)
Q504 2SD2144S (V.W)
Q503 2SD2144S (V.W)
Q505 2SD2144S (V.W)
IC801 STA341M (A) (1/3)
IC802 M5218AL
D440 1SS133
TP1 GND
TP2 RF
TP3 TE
TP4 TRHD
TP6 CK
L.ON
WDCK
BCK
CK01
DEP
DM-
HF
FRF
FZC
FCS
FD
TER
TD
TRGL
TROF
TRHD
TLOF
KP+
KP-
GU
SM+
SM-
DM+
DOWN
UP
FM+
+5V
+12V
-12V
+10V
-10V
ENN-327-1

How to Use Schematic Diagrams

1. ——— indicates the +B line.
2. – – – – indicates the –B line.
3. ▨ indicates signal path.
4. ▭ indicates voltage value.
5. Parts marked with ⚠ and those in the shaded area ■ are parts for safety.
   Be sure to use one with the specified part number.
6. This is the standard circuit diagram. The circuits and circuit constants are subject to change for improvement without notice.


IC703 D/A CONVERTER JCE4501
IC901 MN171602JPQ2
IC902 NN1280P
IC851 M5218AL
IC801 STA341M
IC871 M5218AL
IC701 M5218AL
IC702 M5218AL
FEED SERVO
DEEMPHASIS
LOW PASS FILTER
AUTO SLICER
PLL ADJUST
BIT PLL
VERTICAL MOTOR
HORIZONTAL MOTOR
SW802 MAGAZINE IN SW
SW803 LOAD/JAB SW
SW804 UP/DOWN SW
SW805 RESET&MEMORY SW
SW801 OPEN/CLOSE SW
* MARK
CP951
J SHORT
C USED
P951
P901
FW801
FW831

PARTS LIST

Contents

General Exploded View and Parts List 2-

CD Changer Ass'y and Parts List 2-

- ■How to install the gears and pulley when servicing 2-

Printed Circuit Board Ass'y and Parts List 2-

- ■ENN-327☐ CD PC Board Ass'y 2-
- ■ENA-131 A Tuner PC Board Ass'y 2-

General Exploded View and Parts List

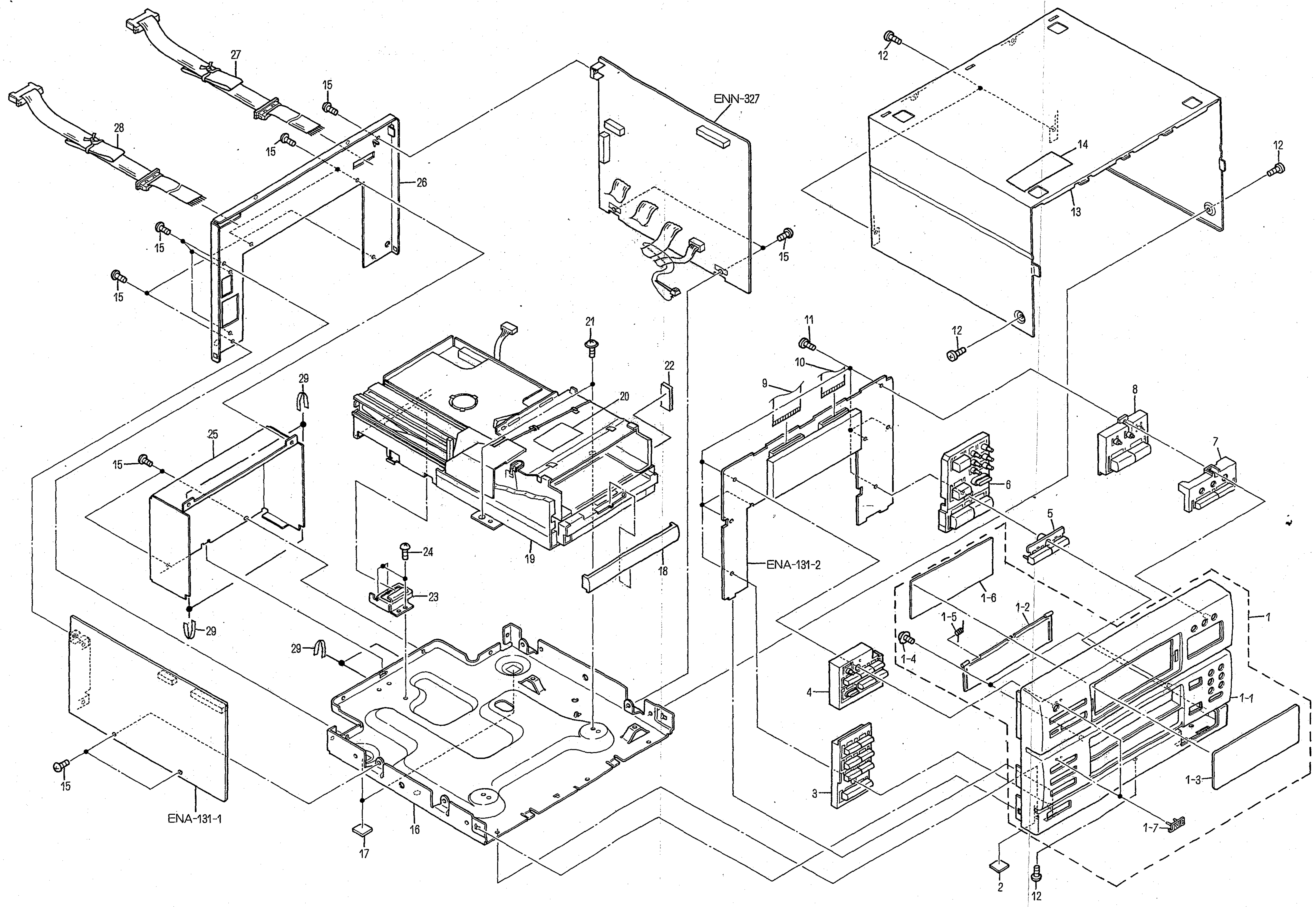
■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XTMX77MTNJS	Front Panel Ass'y	1		J
		EFP-XTMX77MTNCS	Front Panel Ass'y	1		C
	1-1	E102557-001	Front Panel	1		
	1-2	E307973-001	Lid	1		
	1-3	E307975-001	Tuner Window Screen	1		J
		E307975-002	Tuner Window Screen	1		C
	1-4	E72405-001	Special Screw	2		
	1-5	E73534-001	Spring	1		
	1-6	E75130-007	FL Screen	1		J
	1-7	E406971-001	JVC Mark	2		
	2	E406855-006	Spacer	2	Front Foot	
	3	E207411-001	Push Button	1	CD EDIT	
	4	E307987-001	Push Button	1	TIMER	
	5	E207420-001	Push Button	1	CD FF	
	6	E207409-001	Push Button	1	CD DISK	
	7	E307958-221	Push Button	1	TUNING	
	8	E307925-221	Push Button	1	PRESET	
	9	EWR133K-17TT	Flat Wire	1	FC221 (33PIN)	
	10	EWR129K-15TT	Flat Wire	1	FC222 (29PIN)	
	11	SDSF2610Z	Screw	8		
	12	SDSG3006M	Screw	5		
	13	E207399-004	Metal Cover	1		
	14	E67000-018	Caution Label	1		
	15	SBSG3008CC	Screw	14		
	16	E102564-001	Chassis Base	1		
	17	E406855-007	Spacer	2	Rear Foot	
	18	E307992-001	Fitting	1		
	19	————	CD Changer Mechanism Unit Ass'y	1	See page 2-5	
	20	E406507-001	Caution Label	1		C
	21	GBSG3008Z	Screw	2		
	22	E306805-065	Spacer	1		
	23	E307977-001	Bracket	1		
	24	SBST3004CC	Screw	3		
	25	E207413-001	Rear Cover	1		
	26	E207402-001	Rear Panel	1		J
		E207402-002	Rear Panel	1		C
	27	EWP907-010	Flat Wire Ass'y	1	for CD	
	28	EWP907-011	Flat Wire Ass'y	1	for Tuner	
	29	EXO015008H05S11	Spacer	6		
	—	E61029-009	Number Label	1		

⚠ Safety Parts

The Marks for Designated Areas
J························the U.S.A.
C························Canada
No marks indicates all areas.

■ Exploded View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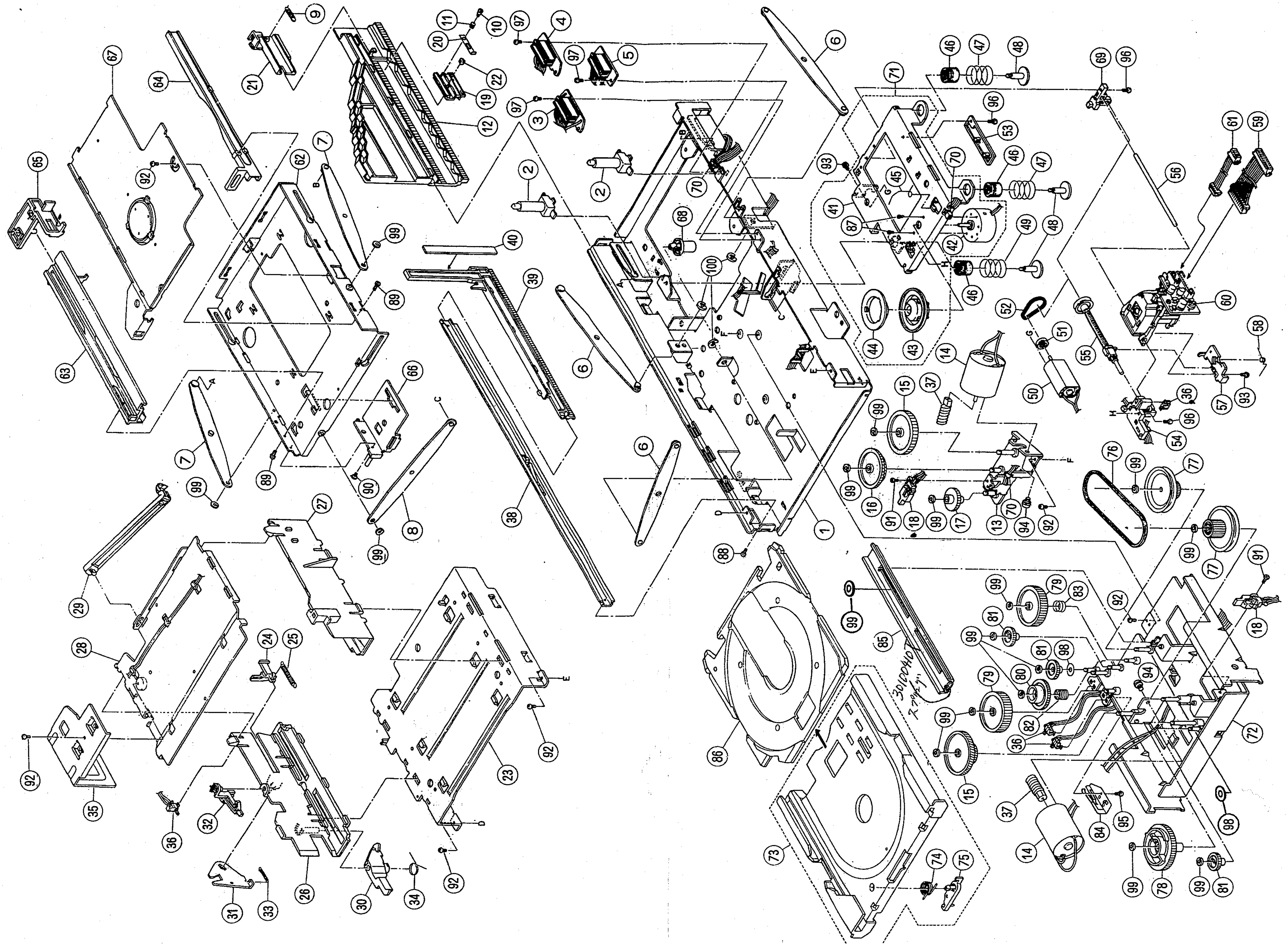
CD Changer Ass'y and Parts List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■ Parts List (CD Changer Ass'y)

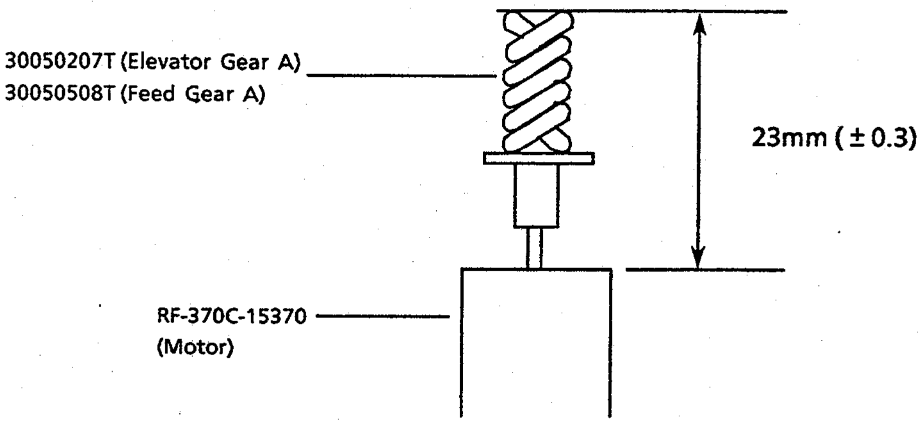
Item	Part Number	Part Name	Q'ty	Description	Areas
1	30100101T	Chassis Base	1		
2	30050115T	Guide Boss	2		
3	300501302T	Connector PC Board A Ass'y	1		
4	301001301T	Connector PC Board D Ass'y	1		
5	300501304T	Connector PC Board P Ass'y	1		
6	301002502T	Elevator Arm A Ass'y	3		
7	301002503T	Elevator Side Arm B Ass'y	2		
8	301002504T	Elevator Front Arm A Ass'y	1		
9	30100221T	Cam Lever Spring	1		
10	30100222T	Collar Screw	1		
11	30100223T	Cam Spring	1		
12	30100202T	Lift Cam	1		
13	301002501T	Elevator Motor Bracket Ass'y	1		
14	RF-370C-15370	Loading Motor	2		
15	30100210T	Elevator Gear B	2		
16	30100~~212T~~ 211T	Elevator Gear C	1		
17	30100~~213T~~ 212T	Elevator Gear D	1		
18	640101167T	◆ Leaf Switch	1		
19	30100204T	Cam Slider	1		
20	30100205T	Cam Spring Plate	1		
21	30100206T	Cam Lever	1		
22	30100207T	Cam Roller	1		
23	30100301T	Guide Base	1		
24	30100311T	Elevator Slide Lever	1		
25	30100312T	Elevator Slide Lever Spring	1		
26	301003703T	Magazine Guide	1	Left	
27	30050303T	Magazine Guide	1	Right	
28	30100305T	Guide Cover	1		
29	30050309T	Tray Stopper	1		
30	30100310T	Open Lever	1		
31	30100308T	Elevator Kick Lever	1		
32	30100307T	Lock Lever	1		
33	30100309T	Elevator Kick Lever Spring	1		
34	30100313T	Open Lever Spring	1		
35	301003706T	Cam Stabilizer	1		
36	64020403T	● Push Switch	4		
37	30050508T	Feed Gear A	2		
38	301005501T	Feed Rail Ass'y	1		
39	30100504T	Hook Slide Gear	1		
40	30100505T	Slide Gear Plate	1		
41	30050738T	Turn Table Base	1		
42	60020705T	Spindle Motor	1		
43	30050729T	Turn Table	1		
44	30050713T	Turn Table Plate	1		
45	30050742T	Controller Spring	1		
46	30050721T	Floating Rubber	3		
47	30050715T	Floating Spring (B)	2		
48	30050743T	Floating Screw	3		
49	30050740T	Floating Spring	1		
50	60021102T	Feed Motor	1		
51	30050709T	Motor Pulley	1		
52	30050714T	Feed Motor Belt	1		
53	30050737T	Pick up Support	1		
54	30050724T	Shaft Holder A	1		
55	300507303T	Feed Screw Ass'y	1		
56	30050728T	Pick up Shaft	1		
57	30050735T	Feed Nut Support	1		
58	30050739T	Feed Nut Spring	1		
59	EWS26A-B921	Wire	1	10Pin	
60	OPTIMA-5S	Pick up	1		

Item	Part Number	Part Name	Q'ty	Description	Areas
61	EWS264-B924	Wire	1	4Pin	
62	301008503T	Rail Base Ass'y	1		
63	30100802T	Rail	1	Left	
64	30100803T	Rail	1	Right	
65	30100804T	Hook Lever	1		
66	301008502T	LP Bracket Ass'y	1		
67	301008301T	Magazine Holder Ass'y	1		
68	30050114T	Chassis Support	1		
69	30050725T	Shaft Holder B	1		
70	12030105T	Tie Band	4		
71	300507305T	Turn Table Base Ass'y	1		
※72	301004502T	Plus Base Ass'y	1		
73	301004302T	Plus Rail Base Ass'y	1		
74	30100415T	Stopper Spring	1		
75	30050416T	Stopper	1		
76	30100411T	Plus Belt	1		
77	30100403T	Plus Gear A	2		
78	30100404T	Plus Gear B	1		
79	30100515T	Feed Gear C	2		
80	30100506T	Feed Gear D	1		
81	30100516T	Feed Gear E	3		
82	30100413T	Feed Gear D Spring	1		
83	30100412T	Feed Gear E Spring	1		
84	30100414T	Switch Actuator	1		
※85	30100418T	Plus Slide Rail	1		
86	E26609-003	Plus 1 Tray	1		
87	SPSK1722M	Screw	2		
88	9C0420253T	Screw	1		
89	9C0820601T	Screw	2		
90	9C1220301T	Screw	1		
91	9C0420403T	Screw	2		
92	9P0420031T	Screw	6		
93	9P0220031T	Screw	2		
94	9P0230041T	Screw	2		
95	9P1120032T	Screw	1		
96	9P0420051T	Screw	3		
97	9P0420041T	Screw	3		
98	9W0113080T	Washer	3		
99	9W0250110T	Washer	18		
100	REE3000	E. Ring	3		

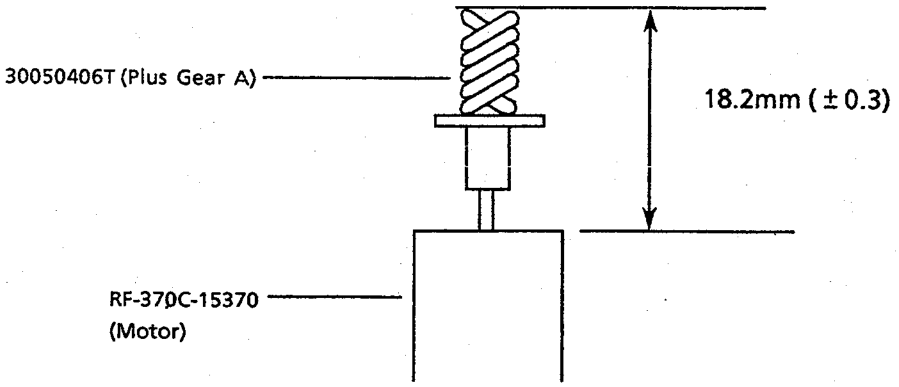
※ Replace the No.72 (Plus Base Ass'y) or No.85 (Plus Slide Rail) at the same time when replacing the No.85 or No.72.
In this time, add the No.98 and No.99 (Shaded ones).
~ Perform the above information only alphabetic A of the changer mechanism unit assembly.

■ How to install the gears and pulley when servicing.

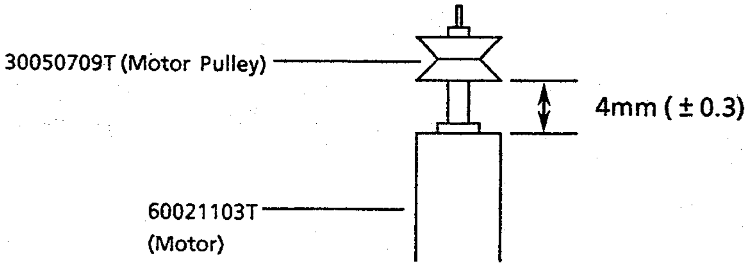
1. Elevator Motor, Loading Motor


30050207T (Elevator Gear A)
30050508T (Feed Gear A)
23mm (± 0.3)
RF-370C-15370
(Motor)

2. Loading Motor for single tray


30050406T (Plus Gear A)
18.2mm (± 0.3)
RF-370C-15370
(Motor)

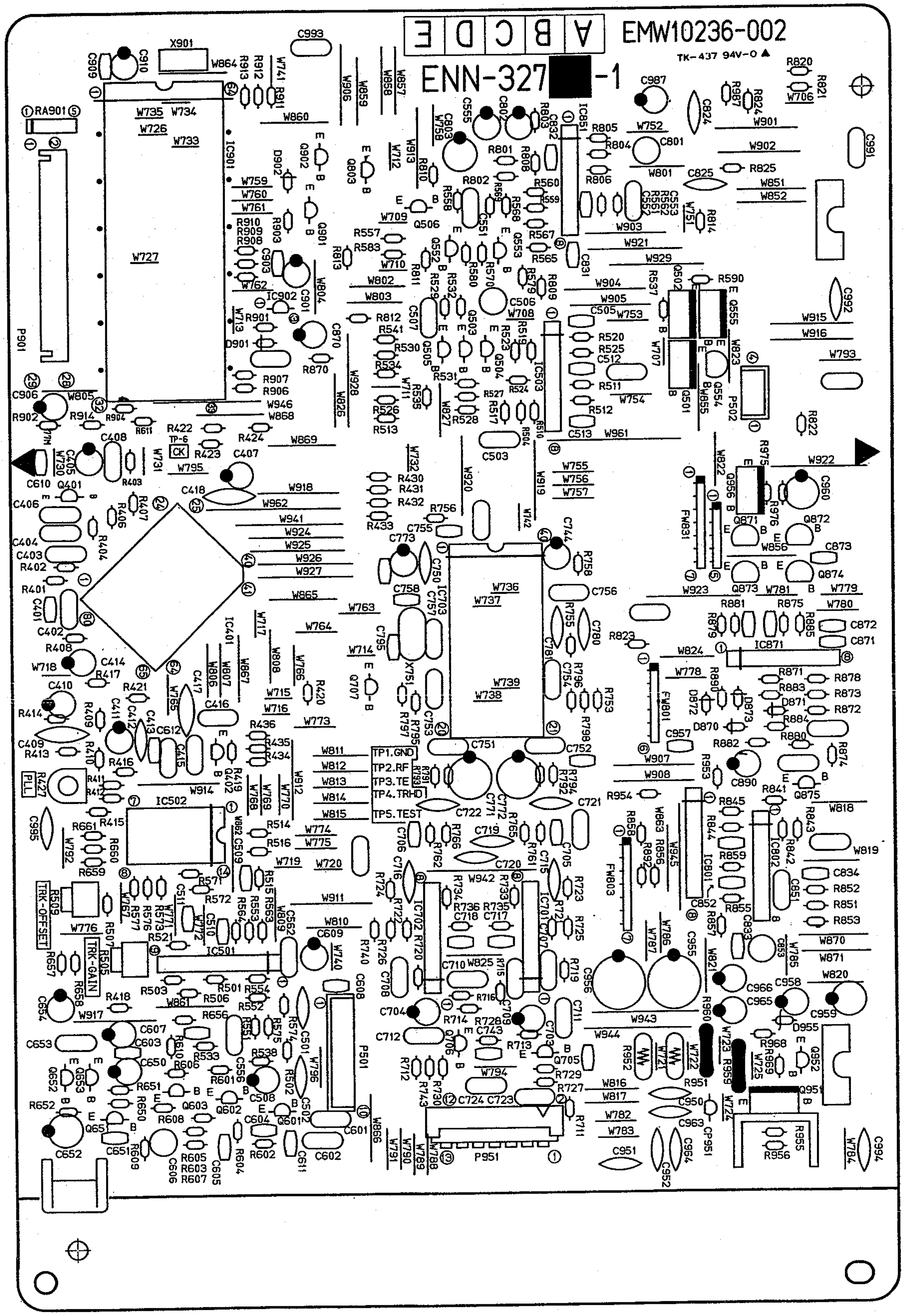
3. Feed Motor


30050709T (Motor Pulley)
4mm (± 0.3)
60021103T
(Motor)

Printed Circuit Board Ass'y and Parts List

■ENN-327☐ CD PC Board Ass'y

Note : ENN-327☐ varies according to the areas employed. See note (1) when placing an order.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ENN-327■-1
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RA901
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IC901
IC902
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IC503
IC851
IC701
IC702
IC703
IC801
IC802
IC871
TP-6
CK
PLL
TP1.GND
TP2.RF
TP3.TE
TP4.TRHD
TP5.TEST
TRK-OFFSET
TRK-GAIN
FW831
FW801
FW803
P501
P502
P951
X751

Note(1)

PC Board Ass'y	Designated Areas
ENN-327 A	the U.S.A.
ENN-327 B	Canada

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q401	2SD2144S(VW)	SILICON ROHM	
	Q402	2SD2144S(VW)	SILICON ROHM	
	Q501	2SD2037(E,F)	SILICON ROHM	
	Q502	2SB1357(E,F)	SILICON ROHM	
	Q503	2SD2144S(VW)	SILICON ROHM	
	Q504	2SD2144S(VW)	SILICON ROHM	
	Q505	2SD2144S(VW)	SILICON ROHM	
	Q506	DTA144WS	SILICON ROHM	
	Q552	2SD2144S(VW)	SILICON ROHM	
	Q553	2SA933S(R,S)	SILICON ROHM	
	Q554	2SC2060(Q,R)	SILICON ROHM	
	Q555	2SB1357(E,F)	SILICON ROHM	
	Q601	2SC535(B,C)	SILICON HITACHI	
	Q602	2SC1740S(R,S)	SILICON ROHM	
	Q603	2SA933S(R,S)	SILICON ROHM	
	Q651	2SA933S(R,S)	SILICON ROHM	
	Q652	2SC1740S(R,S)	SILICON ROHM	
	Q653	2SC1740S(R,S)	SILICON ROHM	
	Q705	2SD1302(S,T)	SILICON MATSUSHITA	
	Q706	2SD1302(S,T)	SILICON MATSUSHITA	
	Q707	DTA144ES	SILICON ROHM	
	Q803	2SD2144S(VW)	SILICON ROHM	
	Q871	2SC2060(Q,R)	SILICON ROHM	
	Q872	2SC2060(Q,R)	SILICON ROHM	
	Q873	2SA934(Q,R)	SILICON ROHM	
	Q874	2SA934(Q,R)	SILICON ROHM	
	Q875	DTC144ES	SILICON ROHM	
	Q901	DTA114YS	SILICON ROHM	
	Q902	DTC144ES	SILICON ROHM	
	Q951	2SB1187(E,F)	SILICON ROHM	
	Q952	2SC1740S(R,S)	SILICON ROHM	
	Q956	2SB1357(E,F)	SILICON ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC401	YM7121B	I.C. YAMAHA	
	IC501	TL072S	I.C. DAINICHI	
	IC502	BA10339	I.C. ROHM	
	IC503	M5218AL	I.C. MITSUBISHI	
	IC701	M5218AL	I.C. MITSUBISHI	
	IC702	M5218AL	I.C. MITSUBISHI	
	IC703	JCE4501	I.C. MATSUSHITA	
	IC801	STA341M(A)	I.C. SANKEN	
	IC802	M5218AL	I.C. MITSUBISHI	
	IC851	M5218AL	I.C. MITSUBISHI	
	IC871	M5218AL	I.C. MITSUBISHI	
	IC901	MN171602JPQ2	I.C. MATSUSHITA	
	IC902	MN1281(P,Q)	I.C. MATSUSHITA	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D870	1SS133	SILICON ROHM	
	D871	1SS133	SILICON ROHM	
	D872	1SS133	SILICON ROHM	
	D873	1SS133	SILICON ROHM	
	D901	1SS133	SILICON ROHM	
	D902	1SS133	SILICON ROHM	
	D955	MTZ5.6JB	ZENER ROHM	
	D440	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C401	QCBB1HK-101	100PF 50V CERAMIC	
	C402	QFV81HJ-105	1MF 50V T.FILM	
	C403	QFN81HJ-182	1800PF 50V MYLAR	
	C404	QFV81HJ-224	0.22MF 50V T.FILM	
	C405	QETB1EM-106	10MF 25V ELECTRO	
	C406	QCZ0205-155	1.5MF 25V CERAMIC	
	C407	QETB1AM-107	100MF 10V ELECTRO	
	C408	QFV81HJ-104	0.1MF 50V T.FILM	
	C409	QCF21HP-473	0.047MF 50V CERAMIC	
	C410	QETB1EM-106	10MF 25V ELECTRO	
	C411	QETB1AM-107	100MF 10V ELECTRO	
	C412	QCC21EM-473	0.047MF 25V CERAMIC	
	C413	QCSB1HJ-470	47PF 50V CERAMIC	
	C414	QETB1EM-106	10MF 25V ELECTRO	
	C415	QFV81HJ-563	0.056MF 50V T.FILM	
	C416	QFV81HJ-564	0.56MF 50V T.FILM	
	C417	QCC21EM-473	0.047MF 25V CERAMIC	
	C418	QCF21HP-473	0.047MF 50V CERAMIC	
	C501	QCT26CH-151	150PF 50V CERAMIC	
	C502	QCT26CH-121	120PF 50V CERAMIC	
	C503	QFV81HJ-223	0.022MF 50V T.FILM	
	C505	QCSB1HK-4R7	4.7PF 50V CERAMIC	
	C506	QEN51HM-225	2.2MF 50V NON POLE	
	C507	QFV81HJ-563	0.056MF 50V T.FILM	
	C508	QETB1AM-476	47MF 10V ELECTRO	
	C509	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C510	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C511	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C512	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C513	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C551	QFV81HJ-183	0.018MF 50V T.FILM	
	C552	QCBB1HK-271	270PF 50V CERAMIC	
	C553	QFV81HJ-393	0.039MF 50V T.FILM	
	C555	QETB1CM-226	22MF 16V ELECTRO	
	C556	QFV81HJ-104	0.1MF 50V T.FILM	
	C562	QFV81HJ-224	0.22MF 50V T.FILM	
	C601	QFN81HJ-472	4700PF 50V MYLAR	
	C602	QFN81HJ-472	4700PF 50V MYLAR	
	C603	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C604	QCSB1HK-3R9	3.9PF 50V CERAMIC	
	C605	QCBB1HK-471	470PF 50V CERAMIC	
	C606	QEN51HM-106	10MF 50V NON POLE	
	C607	QETB1CM-476	47MF 16V ELECTRO	
	C608	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C609	QETB1AM-476	47MF 10V ELECTRO	
	C610	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C611	QCBB1HK-101	100PF 50V CERAMIC	
	C612	QFV81HJ-183	0.018MF 50V T.FILM	
	C650	QETB1HM-105	1MF 50V ELECTRO	
	C651	QCBB1HK-101	100PF 50V CERAMIC	
	C652	QETB1CM-107	100MF 16V ELECTRO	
	C653	QFV81HJ-473	0.047MF 50V T.FILM	
	C654	QETB1EM-106	10MF 25V ELECTRO	
	C703	QETB1CM-476	47MF 16V ELECTRO	
	C704	QETB1CM-476	47MF 16V ELECTRO	
	C705	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C706	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C707	QFV81HJ-103	0.01MF 50V T.FILM	
	C708	QFV81HJ-103	0.01MF 50V T.FILM	
	C709	QFN81HJ-182	1800PF 50V MYLAR	
	C710	QFN81HJ-182	1800PF 50V MYLAR	
	C711	QFV81HJ-683	0.068MF 50V T.FILM	
	C712	QFV81HJ-683	0.068MF 50V T.FILM	
	C715	QCS21HJ-221	220PF 50V CERAMIC	
	C716	QCS21HJ-221	220PF 50V CERAMIC	
	C717	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C718	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C719	QCS21HJ-221	220PF 50V CERAMIC	
	C720	QCS21HJ-221	220PF 50V CERAMIC	
	C721	QCS21HJ-221	220PF 50V CERAMIC	
	C722	QCS21HJ-221	220PF 50V CERAMIC	
	C723	QFN81HJ-562	5600PF 50V MYLAR	
	C724	QFN81HJ-562	5600PF 50V MYLAR	
	C743	QCVB1CM-103	0.01MF 16V CERAMIC	
	C744	QETB1AM-107	100MF 10V ELECTRO	
	C750	QCS21HJ-680	68PF 50V CERAMIC	
	C751	QCZ0205-155	1.5MF 25V CERAMIC	
	C752	QCZ0205-155	1.5MF 25V CERAMIC	
	C753	QCZ0205-155	1.5MF 25V CERAMIC	
	C754	QCZ0205-155	1.5MF 25V CERAMIC	
	C755	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C756	QCZ0205-155	1.5MF 25V CERAMIC	
	C757	QCZ0205-155	1.5MF 25V CERAMIC	
	C758	QCT30CH-120	12PF 50V CERAMIC	
	C771	QETB0JM-477	470MF 6.3V ELECTRO	
	C772	QETB0JM-477	470MF 6.3V ELECTRO	
	C773	QETB1AM-107	100MF 10V ELECTRO	
	C780	QCS21HJ-5R0	5PF 50V CERAMIC	
	C781	QCS21HJ-5R0	5PF 50V CERAMIC	
	C795	QCT30CH-3R9	3.9PF 50V CERAMIC	
	C801	QEN51HM-225	2.2MF 50V NON POLE	
	C802	QETB1EM-106	10MF 25V ELECTRO	
	C803	QETB1AM-107	100MF 10V ELECTRO	
	C824	QCF21HP-223	0.022MF 50V CERAMIC	
	C825	QCF21HP-223	0.022MF 50V CERAMIC	
	C831	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C832	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C833	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C834	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C851	QFN81HJ-272	2700PF 50V MYLAR	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C852	QCBB1HK-101	100PF 50V CERAMIC	
	C853	QEN51HM-225	2.2MF 50V NON POLE	
	C870	QETB1HM-474	0.47MF 50V ELECTRO	
	C871	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C872	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C873	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C890	QETB1HM-474	0.47MF 50V ELECTRO	
	C901	QETB1EM-106	10MF 25V ELECTRO	
	C903	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C906	QETB1HM-226	22MF 50V ELECTRO	
	C909	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C910	QETB1AM-476	47MF 10V ELECTRO	
	C950	QCC21EM-473	0.047MF 25V CERAMIC	
	C951	QCC21EM-473	0.047MF 25V CERAMIC	
	C952	QCC21EM-473	0.047MF 25V CERAMIC	
	C955	QETB1CM-108	1000MF 16V ELECTRO	
	C956	QETB1CM-108	1000MF 16V ELECTRO	
	C957	QCF21HP-223	0.022MF 50V CERAMIC	
	C958	QETB1EM-476	47MF 25V ELECTRO	
	C959	QETB1AM-107	100MF 10V ELECTRO	
	C960	QETB1AM-107	100MF 10V ELECTRO	
	C963	QCC21EM-473	0.047MF 25V CERAMIC	
	C964	QCC21EM-473	0.047MF 25V CERAMIC	
	C965	QETB1CM-227	220MF 16V ELECTRO	
	C966	QETB1CM-227	220MF 16V ELECTRO	
	C987	QETB1HM-475	4.7MF 50V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R401	QRD167J-182	1.8K 1/6W CARBON	
	R402	QRD167J-821	820 1/6W CARBON	
	R403	QRD167J-682	6.8K 1/6W CARBON	
	R404	QRD167J-101	100 1/6W CARBON	
	R406	QRD167J-682	6.8K 1/6W CARBON	
	R407	QRD167J-102	1K 1/6W CARBON	
	R408	QRD167J-822	8.2K 1/6W CARBON	
	R409	QRD167J-822	8.2K 1/6W CARBON	
	R410	QRD167J-224	220K 1/6W CARBON	
	R411	QRD167J-184	180K 1/6W CARBON	
	R412	QRD167J-393	39K 1/6W CARBON	
	R413	QRD167J-182	1.8K 1/6W CARBON	
	R414	QRD167J-182	1.8K 1/6W CARBON	
	R415	QRD167J-122	1.2K 1/6W CARBON	
	R416	QRD167J-221	220 1/6W CARBON	
	R417	QRD167J-682	6.8K 1/6W CARBON	
	R418	QRD167J-471	470 1/6W CARBON	
	R419	QRD167J-102	1K 1/6W CARBON	
	R420	QRD167J-183	18K 1/6W CARBON	
	R421	QRD167J-103	10K 1/6W CARBON	
	R423	QRD167J-221	220 1/6W CARBON	
	R424	QRD167J-221	220 1/6W CARBON	
	R427	QVPA601-104A	100K VARIABLE	
	R430	QRD167J-561	560 1/6W CARBON	
	R431	QRD167J-561	560 1/6W CARBON	
	R432	QRD167J-561	560 1/6W CARBON	
	R433	QRD167J-561	560 1/6W CARBON	
	R434	QRD167J-472	4.7K 1/6W CARBON	
	R435	QRD167J-472	4.7K 1/6W CARBON	
	R436	QRD167J-472	4.7K 1/6W CARBON	
	R440	QRD167J-102	1K 1/6W CARBON	
	R501	QRD167J-563	56K 1/6W CARBON	
	R502	QRD167J-563	56K 1/6W CARBON	
	R503	QRD167J-394	390K 1/6W CARBON	
	R504	QRD167J-681	680 1/6W CARBON	
	R505	QVPA603-202M	2K VARIABLE	
	R506	QRD167J-561	560 1/6W CARBON	
	R507	QRD167J-334	330K 1/6W CARBON	
	R509	QVPA603-154A	150K VARIABLE	
	R510	QRD167J-223	22K 1/6W CARBON	
	R511	QRD167J-682	6.8K 1/6W CARBON	
	R512	QRD167J-103	10K 1/6W CARBON	
	R513	QRD167J-562	5.6K 1/6W CARBON	
	R514	QRD167J-562	5.6K 1/6W CARBON	
	R515	QRD167J-562	5.6K 1/6W CARBON	
	R516	QRD167J-562	5.6K 1/6W CARBON	
	R517	QRD167J-183	18K 1/6W CARBON	
	R519	QRD167J-103	10K 1/6W CARBON	
	R520	QRD167J-224	220K 1/6W CARBON	
	R521	QRD167J-222	2.2K 1/6W CARBON	
	R523	QRD167J-434	430K 1/6W CARBON	
	R524	QRD167J-434	430K 1/6W CARBON	
	R525	QRD167J-103	10K 1/6W CARBON	
	R526	QRD167J-183	18K 1/6W CARBON	
	R527	QRD167J-104	100K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R528	QRD167J-104	100K 1/6W CARBON	
	R529	QRD167J-681	680 1/6W CARBON	
	R530	QRD167J-183	18K 1/6W CARBON	
	R531	QRD167J-184	180K 1/6W CARBON	
	R532	QRD167J-102	1K 1/6W CARBON	
	R533	QRD167J-562	5.6K 1/6W CARBON	
	R534	QRD167J-183	18K 1/6W CARBON	
	R535	QRD167J-183	18K 1/6W CARBON	
	R537	QRD167J-470	47 1/6W CARBON	
	R538	QRD167J-562	5.6K 1/6W CARBON	
	R541	QRD167J-103	10K 1/6W CARBON	
	R551	QRD167J-104	100K 1/6W CARBON	
	R552	QRD167J-104	100K 1/6W CARBON	
	R553	QRD167J-394	390K 1/6W CARBON	
	R554	QRD167J-394	390K 1/6W CARBON	
	R557	QRD167J-681	680 1/6W CARBON	
	R558	QRD167J-473	47K 1/6W CARBON	
	R559	QRD167J-331	330 1/6W CARBON	
	R560	QRD167J-333	33K 1/6W CARBON	
	R561	QRD167J-273	27K 1/6W CARBON	
	R562	QRD167J-394	390K 1/6W CARBON	
	R563	QRD167J-182	1.8K 1/6W CARBON	
	R564	QRD167J-121	120 1/6W CARBON	
	R565	QRD167J-335	3.3M 1/6W CARBON	
	R567	QRD167J-105	1M 1/6W CARBON	
	R568	QRD167J-470	47 1/6W CARBON	
	R569	QRD167J-473	47K 1/6W CARBON	
	R570	QRD167J-272	2.7K 1/6W CARBON	
	R571	QRD167J-682	6.8K 1/6W CARBON	
	R572	QRD167J-104	100K 1/6W CARBON	
	R573	QRD167J-562	5.6K 1/6W CARBON	
	R574	QRD167J-105	1M 1/6W CARBON	
	R575	QRD167J-105	1M 1/6W CARBON	
	R576	QRD167J-104	100K 1/6W CARBON	
	R577	QRD167J-562	5.6K 1/6W CARBON	
	R579	QRD167J-104	100K 1/6W CARBON	
	R580	QRD167J-103	10K 1/6W CARBON	
	R583	QRD167J-183	18K 1/6W CARBON	
	R590	QRD167J-470	47 1/6W CARBON	
	R601	QRD167J-183	18K 1/6W CARBON	
	R602	QRD167J-432	4.3K 1/6W CARBON	
	R603	QRD167J-391	390 1/6W CARBON	
	R604	QRD167J-221	220 1/6W CARBON	
	R605	QRD167J-152	1.5K 1/6W CARBON	
	R606	QRD167J-561	560 1/6W CARBON	
	R607	QRD167J-561	560 1/6W CARBON	
	R608	QRD167J-562	5.6K 1/6W CARBON	
	R609	QRD167J-152	1.5K 1/6W CARBON	
	R610	QRD167J-271	270 1/6W CARBON	
	R611	QRD167J-222	2.2K 1/6W CARBON	
	R650	QRD167J-102	1K 1/6W CARBON	
	R651	QRD167J-103	10K 1/6W CARBON	
	R652	QRD167J-272	2.7K 1/6W CARBON	
	R656	QRD167J-391	390 1/6W CARBON	
	R657	QRD167J-103	10K 1/6W CARBON	
	R658	QRD167J-562	5.6K 1/6W CARBON	
	R659	QRD167J-472	4.7K 1/6W CARBON	
	R660	QRD167J-822	8.2K 1/6W CARBON	
	R661	QRD167J-103	10K 1/6W CARBON	
	R711	QRD167J-151	150 1/6W CARBON	
	R712	QRD167J-151	150 1/6W CARBON	
	R713	QRD167J-273	27K 1/6W CARBON	
	R714	QRD167J-273	27K 1/6W CARBON	
	R715	QRD167J-472	4.7K 1/6W CARBON	
	R716	QRD167J-472	4.7K 1/6W CARBON	
	R719	QRD167J-112	1.1K 1/6W CARBON	
	R720	QRD167J-112	1.1K 1/6W CARBON	
	R721	QRD167J-681	680 1/6W CARBON	
	R722	QRD167J-681	680 1/6W CARBON	
	R723	QRD167J-511	510 1/6W CARBON	
	R724	QRD167J-511	510 1/6W CARBON	
	R725	QRD167J-241	240 1/6W CARBON	
	R726	QRD167J-241	240 1/6W CARBON	
	R727	QRD167J-104	100K 1/6W CARBON	
	R728	QRD167J-104	100K 1/6W CARBON	
	R729	QRD167J-392	3.9K 1/6W CARBON	
	R730	QRD167J-392	3.9K 1/6W CARBON	
	R733	QRD167J-183	18K 1/6W CARBON	
	R734	QRD167J-183	18K 1/6W CARBON	
	R735	QRD167J-183	18K 1/6W CARBON	
	R736	QRD167J-183	18K 1/6W CARBON	
	R740	QRD167J-154	150K 1/6W CARBON	
	R743	QRD167J-684	680K 1/6W CARBON	
	R753	QRD167J-101	100 1/6W CARBON	
	R755	QRD167J-181	180 1/6W CARBON	
	R756	QRD167J-472	4.7K 1/6W CARBON	
	R758	QRD167J-2R2	2.2 1/6W CARBON	
	R761	QRD167J-243	24K 1/6W CARBON	
	R762	QRD167J-243	24K 1/6W CARBON	
	R765	QRD167J-243	24K 1/6W CARBON	
	R766	QRD167J-243	24K 1/6W CARBON	
⚠	R791	QRV144F-1802	18K 1/4W M.FILM	
⚠	R792	QRV144F-1802	18K 1/4W M.FILM	
⚠	R793	QRV144F-1802	18K 1/4W M.FILM	
⚠	R794	QRV144F-1802	18K 1/4W M.FILM	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	R795	QRV144F-1802	18K 1/4W M.FILM	
⚠	R796	QRV144F-1802	18K 1/4W M.FILM	
⚠	R797	QRV144F-1802	18K 1/4W M.FILM	
⚠	R798	QRV144F-1802	18K 1/4W M.FILM	
	R801	QRD167J-334	330K 1/6W CARBON	
	R802	QRD167J-564	560K 1/6W CARBON	
	R803	QRD167J-153	15K 1/6W CARBON	
	R804	QRD167J-184	180K 1/6W CARBON	
	R805	QRD167J-562	5.6K 1/6W CARBON	
	R806	QRD167J-392	3.9K 1/6W CARBON	
	R808	QRD167J-103	10K 1/6W CARBON	
	R809	QRD167J-302	3K 1/6W CARBON	
	R810	QRD167J-102	1K 1/6W CARBON	
	R811	QRD167J-394	390K 1/6W CARBON	
	R812	QRD167J-183	18K 1/6W CARBON	
	R813	QRD167J-273	27K 1/6W CARBON	
	R814	QRD167J-470	47 1/6W CARBON	
	R820	QRD167J-221	220 1/6W CARBON	
	R821	QRD167J-221	220 1/6W CARBON	
	R822	QRD167J-221	220 1/6W CARBON	
	R823	QRD167J-221	220 1/6W CARBON	
	R824	QRD167J-221	220 1/6W CARBON	
	R825	QRD167J-221	220 1/6W CARBON	
	R841	QRD167J-243	24K 1/6W CARBON	
	R842	QRD167J-183	18K 1/6W CARBON	
	R843	QRD167J-203	20K 1/6W CARBON	
	R844	QRD167J-183	18K 1/6W CARBON	
	R845	QRD167J-820	82 1/6W CARBON	
	R851	QRD167J-684	680K 1/6W CARBON	
	R852	QRD167J-684	680K 1/6W CARBON	
	R853	QRD167J-823	82K 1/6W CARBON	
	R855	QRD167J-683	68K 1/6W CARBON	
	R856	QRD167J-123	12K 1/6W CARBON	
	R857	QRD167J-152	1.5K 1/6W CARBON	
	R858	QRD167J-2R2	2.2 1/6W CARBON	
	R859	QRD167J-470	47 1/6W CARBON	
	R870	QRD167J-103	10K 1/6W CARBON	
	R871	QRD167J-153	15K 1/6W CARBON	
	R872	QRD167J-103	10K 1/6W CARBON	
	R873	QRD167J-123	12K 1/6W CARBON	
	R874	QRD167J-362	3.6K 1/6W CARBON	
	R875	QRD167J-393	39K 1/6W CARBON	
	R878	QRD167J-153	15K 1/6W CARBON	
	R879	QRD167J-470	47 1/6W CARBON	
	R880	QRD167J-153	15K 1/6W CARBON	
	R881	QRD167J-393	39K 1/6W CARBON	
	R882	QRD167J-123	12K 1/6W CARBON	
	R883	QRD167J-153	15K 1/6W CARBON	
	R884	QRD167J-103	10K 1/6W CARBON	
	R885	QRD167J-470	47 1/6W CARBON	
	R890	QRD167J-104	100K 1/6W CARBON	
	R892	QRD167J-151	150 1/6W CARBON	
	R901	QRD167J-821	820 1/6W CARBON	
	R902	QRD167J-473	47K 1/6W CARBON	
	R903	QRD167J-472	4.7K 1/6W CARBON	
	R904	QRD167J-103	10K 1/6W CARBON	
	R906	QRD167J-103	10K 1/6W CARBON	
	R907	QRD167J-103	10K 1/6W CARBON	
	R908	QRD167J-103	10K 1/6W CARBON	
	R909	QRD167J-103	10K 1/6W CARBON	
	R910	QRD167J-103	10K 1/6W CARBON	
	R911	QRD167J-103	10K 1/6W CARBON	
	R912	QRD167J-103	10K 1/6W CARBON	
	R913	QRD167J-103	10K 1/6W CARBON	
⚠	R951	PTH61G30BD2R2N	FUSIBLE	
⚠	R952	PTH61G30BD2R2N	FUSIBLE	
	R953	QRD167J-104	100K 1/6W CARBON	
	R954	QRD167J-104	100K 1/6W CARBON	
	R955	QRD167J-222	2.2K 1/6W CARBON	
	R956	QRD167J-221	220 1/6W CARBON	
⚠	R959	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R960	QRZ0077-100	10 1/4W FUSIBLE	
	R968	QRD167J-222	2.2K 1/6W CARBON	
	R969	QRD167J-221	220 1/6W CARBON	
	R975	QRD167J-102	1K 1/6W CARBON	
	R976	QRD167J-821	820 1/6W CARBON	
	R987	QRD167J-101	100 1/6W CARBON	
	RA901	QRB049J-473	47K 1/10W R.NETWORK	

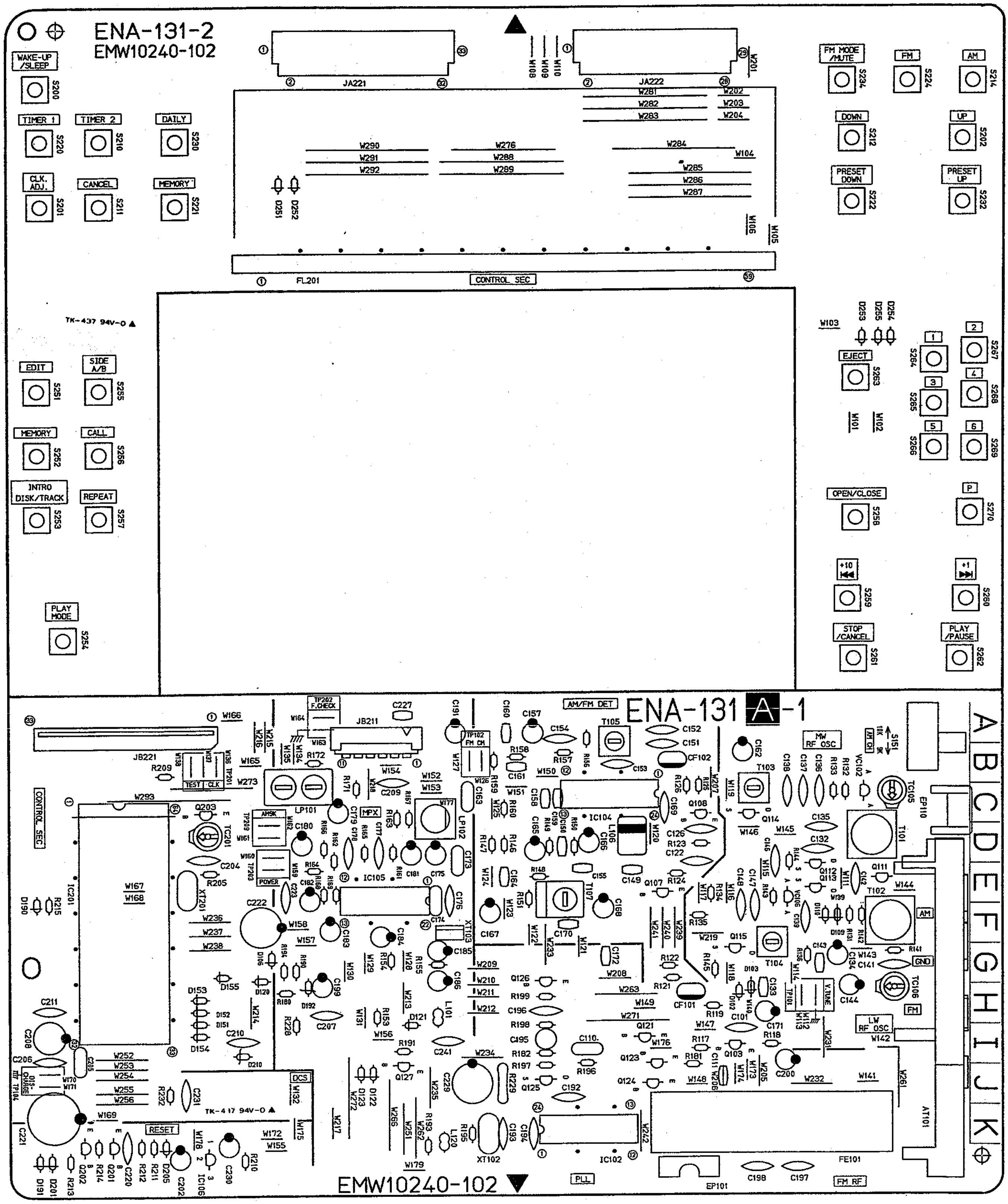
⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	A
		EMW10236-002	CIRCUIT BOARD	
		E70225-001	EARTH PLATE	
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
	P501	EMV5109-010A	PLUG ASSY(10PIN)	
	P502	EMV5109-004A	PLUG ASSY(4PIN)	
	P901	EMV7123-029	CONNECTOR(29PIN)	
	P951	EMV7141-013M	CONNECTOR(13PIN)	
	X751	ECX0169-344EA	RESONATOR	
	X901	ECX0060-000EM	RESONATOR	
⚠	CP951	ICP-N5	I.C. PROTECTOR	
	FW801	EWR36B-10KST	FLAT WIRE(6PIN)	
	FW803	EWR37B-10KST	FLAT WIRE(7PIN)	
	FW831	EWR37B-10KST	FLAT WIRE(7PIN)	

⚠ : SAFETY PART

■ENA-131A Tuner PC Board Ass'y


ENA-131-2
EMW10240-102
WAKE-UP /SLEEP
S200
TIMER 1
S220
TIMER 2
S210
DAILY
S230
CLK. ADJ.
S201
CANCEL
S211
MEMORY
S221
JA221
JA222
FL201
CONTROL SEC
D251
D252
FM MODE /MUTE
S234
FM
S224
AM
S214
DOWN
S212
UP
S202
PRESET DOWN
S222
PRESET UP
S232
TK-437 94V-0
EDIT
S251
SIDE A/B
S255
MEMORY
S252
CALL
S256
INTRO DISK/TRACK
S253
REPEAT
S257
PLAY MODE
S254
EJECT
S263
1
S264
2
S267
3
S265
4
S268
5
S266
6
S269
OPEN/CLOSE
S258
P
S270
+10
S259
+1
S260
STOP /CANCEL
S261
PLAY /PAUSE
S262
ENA-131A-1
AM/FM DET
JB221
JB211
TP202 F.CHECK
TP102 FM CH
TEST
CLK
MPX
AHSK
POWER
IC201
IC105
IC104
IC102
XT201
XT102
T105
T103
T101
T102
T104
T107
LP101
LP102
CF101
CF102
MW RF OSC
LW RF OSC
AM CH
S151
TC105
TC106
EP110
EP101
FE101
AT101
GND
FM
AM
DCS
RESET
TK-417 94V-0
PLL
FM RF
IC106
EMW10240-102
A
B
C
D
E
F
G
H
I
J
K

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q103	2SC461(B,C)	SILICON HITACHI	
	Q107	2SC535(B,C)	SILICON HITACHI	
	Q108	2SC461(B,C)	SILICON HITACHI	
	Q112	2SK301(Q,R)	F.E.T MATSUSHITA	
	Q123	DTA144ES	SILICON ROHM	
	Q124	DTA144ES	SILICON ROHM	
	Q125	2SK301(Q2)	F.E.T MATSUSHITA	
	Q126	2SC458(D)	SILICON HITACHI	
	Q127	DTC144ES	SILICON ROHM	
	Q201	2SC1740(R,S)	SILICON ROHM	
	Q202	DTC114YS	SILICON ROHM	
	Q203	DTA114YS	SILICON ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC102	LC7218	I.C. SANYO	
	IC104	LA1266A	I.C. SANYO	
	IC105	LA3401	I.C. SANYO	
	IC106	MN1281(P,Q)	I.C. MATSUSHITA	
	IC201	HD614089SC91	I.C. HITACHI	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D106	1SS133	SILICON ROHM	
	D120	1SS133	SILICON ROHM	
	D121	1SS133	SILICON ROHM	
	D122	1SS133	SILICON ROHM	
	D123	1SS133	SILICON ROHM	
	D152	1SS133	SILICON ROHM	
	D154	1SS133	SILICON ROHM	
	D155	1SS133	SILICON ROHM	
	D190	1SS133	SILICON ROHM	
	D191	1SS133	SILICON ROHM	
	D192	MTZ5.1JC	ZENER ROHM	
	D201	1SS133	SILICON ROHM	
	D205	1SS133	SILICON ROHM	
	D210	MTZ5.6JC	ZENER ROHM	
	D251	1SS133	SILICON ROHM	
	D252	1SS133	SILICON ROHM	
	D253	1SS133	SILICON ROHM	
	D254	1SS133	SILICON ROHM	
	D255	1SS133	SILICON ROHM	
	VC102	SVC342(L)	VARICAP SANYO	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QCF21HP-223	0.022MF 50V CERAMIC	
	C110	QCZ0202-155	1.5MF 25V CERAMIC	
	C122	QCF21HP-223	0.022MF 50V CERAMIC	
	C126	QCF21HP-223	0.022MF 50V CERAMIC	
	C132	QCS21HJ-561	560PF 50V CERAMIC	
	C133	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C134	QETB1EM-106	10MF 25V ELECTRO	
	C135	QCC21EM-223	0.022MF 25V CERAMIC	
	C136	QCT26CH-180	18PF 50V CERAMIC	
	C137	QCT26CH-221	220PF 50V CERAMIC	
	C138	QCT26CH-241	240PF 50V CERAMIC	
	C149	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C150	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C151	QCF21HP-223	0.022MF 50V CERAMIC	
	C152	QCF21HP-223	0.022MF 50V CERAMIC	
	C153	QCC21EM-223	0.022MF 25V CERAMIC	
	C154	QCF21HP-223	0.022MF 50V CERAMIC	
	C155	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C157	QETB1HM-474	0.47MF 50V ELECTRO	
	C158	QCBB1HK-101	100PF 50V CERAMIC	
	C159	QCBB1HK-101	100PF 50V CERAMIC	
	C160	QCBB1HK-221	220PF 50V CERAMIC	
	C161	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C162	QETB1EM-106	10MF 25V ELECTRO	
	C163	QFLB1HJ-102	1000PF 50V MYLAR	
	C164	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C165	QETB1HM-474	0.47MF 50V ELECTRO	
	C166	QETB1HM-225	2.2MF 50V ELECTRO	
	C167	QETB1HM-225	2.2MF 50V ELECTRO	
	C168	QETB1HM-475	4.7MF 50V ELECTRO	
	C169	QCF21HP-223	0.022MF 50V CERAMIC	
	C170	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C171	QETB1EM-106	10MF 25V ELECTRO	
	C172	QCVB1CM-103	0.01MF 16V CERAMIC	
	C173	QFLB1HJ-393	0.039MF 50V MYLAR	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C174	QFLB1HJ-473	0.047MF 50V MYLAR	
	C175	QETB1EM-106	10MF 25V ELECTRO	
	C176	QCY21HK-102	1000PF 50V CERAMIC	
	C177	QCS21HJ-821	820PF 50V CERAMIC	
	C178	QCS21HJ-821	820PF 50V CERAMIC	
	C179	QETB1HM-225	2.2MF 50V ELECTRO	
	C180	QETB1HM-225	2.2MF 50V ELECTRO	
	C181	QETB1EM-106	10MF 25V ELECTRO	
	C182	QETB1HM-225	2.2MF 50V ELECTRO	
	C183	QETB1HM-105	1MF 50V ELECTRO	
	C184	QETB1HM-105	1MF 50V ELECTRO	
	C185	QETB1HM-225	2.2MF 50V ELECTRO	
	C186	QETB1HM-474	0.47MF 50V ELECTRO	
	C191	QETB1HM-475	4.7MF 50V ELECTRO	
	C192	QCC21EM-473	0.047MF 25V CERAMIC	
	C193	QCS21HJ-180	18PF 50V CERAMIC	
	C194	QCS21HJ-180	18PF 50V CERAMIC	
	C195	QENB1HM-474	0.47MF 50V NON POLE	
	C196	QCY21HK-102	1000PF 50V CERAMIC	
	C197	QCF21HP-223	0.022MF 50V CERAMIC	
	C198	QCF21HP-103	0.01MF 50V CERAMIC	
	C199	QETB1HM-475	4.7MF 50V ELECTRO	
	C202	QETB1HM-225	2.2MF 50V ELECTRO	
	C204	QCT26CH-120	12PF 50V CERAMIC	
	C205	QCZ0202-155	1.5MF 25V CERAMIC	
	C206	QCY21HK-102	1000PF 50V CERAMIC	
	C207	QCF21HP-223	0.022MF 50V CERAMIC	
	C208	QETB1AM-477	470MF 10V ELECTRO	
	C209	QCF21HP-103	0.01MF 50V CERAMIC	
	C210	QCF21HP-103	0.01MF 50V CERAMIC	
	C211	QCF21HP-103	0.01MF 50V CERAMIC	
	C220	QCF21HP-103	0.01MF 50V CERAMIC	
	C221	QEA40HZ-10AB	ELECTRO	
	C222	QETB1CM-477	470MF 16V ELECTRO	
	C223	QCF21HP-103	0.01MF 50V CERAMIC	
	C227	QCVB1CM-103	0.01MF 16V CERAMIC	
	C229	QETB1CM-227	220MF 16V ELECTRO	
	C230	QETB1EM-476	47MF 25V ELECTRO	
	C231	QCF21HP-103	0.01MF 50V CERAMIC	
	C241	QCF21HP-223	0.022MF 50V CERAMIC	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R118	QRD167J-332	3.3K 1/6W CARBON	
	R119	QRD167J-221	220 1/6W CARBON	
	R121	QRD167J-391	390 1/6W CARBON	
	R122	QRD167J-272	2.7K 1/6W CARBON	
	R123	QRD167J-102	1K 1/6W CARBON	
	R124	QRD167J-681	680 1/6W CARBON	
	R125	QRD167J-332	3.3K 1/6W CARBON	
	R126	QRD167J-221	220 1/6W CARBON	
	R131	QRD167J-331	330 1/6W CARBON	
	R132	QRD167J-103	10K 1/6W CARBON	
	R133	QRD167J-473	47K 1/6W CARBON	
	R135	QRD167J-470	47 1/6W CARBON	
	R136	QRD167J-103	10K 1/6W CARBON	
	R146	QRD167J-560	56 1/6W CARBON	
	R147	QRD167J-103	10K 1/6W CARBON	
	R148	QRD167J-103	10K 1/6W CARBON	
	R149	QRD167J-223	22K 1/6W CARBON	
	R150	QRD167J-103	10K 1/6W CARBON	
	R151	QRD167J-222	2.2K 1/6W CARBON	
	R153	QRD167J-103	10K 1/6W CARBON	
	R154	QRD167J-103	10K 1/6W CARBON	
	R155	QRD167J-562	5.6K 1/6W CARBON	
	R156	QRD167J-822	8.2K 1/6W CARBON	
	R157	QRD167J-103	10K 1/6W CARBON	
	R158	QRD167J-183	18K 1/6W CARBON	
	R159	QRD167J-561	560 1/6W CARBON	
	R160	QRD167J-562	5.6K 1/6W CARBON	
	R161	QRD167J-823	82K 1/6W CARBON	
	R162	QRD167J-823	82K 1/6W CARBON	
	R163	QRD167J-472	4.7K 1/6W CARBON	
	R164	QRD167J-472	4.7K 1/6W CARBON	
	R165	QRD167J-184	180K 1/6W CARBON	
	R166	QRD167J-184	180K 1/6W CARBON	
	R167	QRD167J-393	39K 1/6W CARBON	
	R168	QRD167J-103	10K 1/6W CARBON	
	R169	QRD167J-103	10K 1/6W CARBON	
	R171	QRD167J-682	6.8K 1/6W CARBON	
	R172	QRD167J-682	6.8K 1/6W CARBON	
	R180	QRD167J-103	10K 1/6W CARBON	
	R181	QRD167J-222	2.2K 1/6W CARBON	
	R182	QRD167J-181	180 1/6W CARBON	
	R190	QRD167J-103	10K 1/6W CARBON	
	R191	QRD167J-562	5.6K 1/6W CARBON	
	R193	QRD167J-103	10K 1/6W CARBON	
	R194	QRD167J-103	10K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R195	QRD167J-473	47K 1/6W CARBON	
	R196	QRD167J-103	10K 1/6W CARBON	
	R197	QRD167J-222	2.2K 1/6W CARBON	
	R198	QRD167J-332	3.3K 1/6W CARBON	
	R199	QRD167J-472	4.7K 1/6W CARBON	
	R205	QRD167J-473	47K 1/6W CARBON	
	R209	QRD167J-104	100K 1/6W CARBON	
	R210	QRD167J-222	2.2K 1/6W CARBON	
	R211	QRD167J-103	10K 1/6W CARBON	
	R212	QRD167J-473	47K 1/6W CARBON	
	R213	QRD167J-472	4.7K 1/6W CARBON	
	R214	QRD167J-102	1K 1/6W CARBON	
	R215	QRD167J-470	47 1/6W CARBON	
	R228	QRD167J-222	2.2K 1/6W CARBON	
⚠	R229	QRD14CJ-680S	68 1/4W UNF.CARBON	
	R232	QRD167J-153	15K 1/6W CARBON	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10240-102	CIRCUIT BOARD	
	L101	EQL4004-1R0	INDUCTOR	
	L106	EQL3001-102K	INDUCTOR	
	L120	EQL4004-1R0	INDUCTOR	
	S200	ESP0001-023M	TACT SWITCH(WAKE-UP/SLEEP)	
	S201	ESP0001-023M	TACT SWITCH(CLOCK ADJ)	
	S202	ESP0001-023M	TACT SWITCH(UP)	
	S210	ESP0001-023M	TACT SWITCH(TIMER 2)	
	S211	ESP0001-023M	TACT SWITCH(CANCEL)	
	S212	ESP0001-023M	TACT SWITCH(DOWN)	
	S214	ESP0001-023M	TACT SWITCH(AM)	
	S220	ESP0001-023M	TACT SWITCH(TIMER 1)	
	S221	ESP0001-023M	TACT SWITCH(MEMORY)	
	S222	ESP0001-023M	TACT SWITCH(PRESET DOWN)	
	S224	ESP0001-023M	TACT SWITCH(FM)	
	S230	ESP0001-023M	TACT SWITCH(DAILY)	
	S232	ESP0001-023M	TACT SWITCH(PRESET UP)	
	S234	ESP0001-023M	TACT SWITCH(FM MODE/MUTE)	
	S251	ESP0001-023M	TACT SWITCH(EDIT)	
	S252	ESP0001-023M	TACT SWITCH(MEMORY)	
	S253	ESP0001-023M	TACT SWITCH(INTRO)	
	S254	ESP0001-023M	TACT SWITCH(P.MODE)	
	S255	ESP0001-023M	TACT SWITCH(SIDE A/B)	
	S256	ESP0001-023M	TACT SWITCH(CALL)	
	S257	ESP0001-023M	TACT SWITCH(REPEAT)	
	S258	ESP0001-023M	TACT SWITCH(OPEN/CLOSE)	
	S259	ESP0001-023M	TACT SWITCH(+10 ⏭)	
	S260	ESP0001-023M	TACT SWITCH(+1 ⏭)	
	S261	ESP0001-023M	TACT SWITCH(STOP/CANCEL)	
	S262	ESP0001-023M	TACT SWITCH(PLAY/PAUSE)	
	S263	ESP0001-023M	TACT SWITCH(EJECT)	
	S264	ESP0001-023M	TACT SWITCH(1)	
	S265	ESP0001-023M	TACT SWITCH(3)	
	S266	ESP0001-023M	TACT SWITCH(5)	
	S267	ESP0001-023M	TACT SWITCH(2)	
	S268	ESP0001-023M	TACT SWITCH(4)	
	S269	ESP0001-023M	TACT SWITCH(6)	
	S270	ESP0001-023M	TACT SWITCH(P)	
	T101	EQR1111-014	AM RF COIL	
	T103	EQR1207-017	MW OSC COIL	
	T105	EQT2140-017	I.F. TRANSFORMER	
	T107	ECB1560-010	CERAMIC FILTER	
	AT101	EMB41YV-401K	ANTENNA TERMINAL	
	CF101	ECB2123-006R	CERAMIC FILTER	
	CF102	ECB2123-006R	CERAMIC FILTER	
	EP101	E70859-001	EARTH PLATE	
	EP110	E70225-001	EARTH PLATE	
	FE101	EAF2203-001	FRONT END	
	FH201	E307978-001	FL HOLDER	
	FL201	ELU0001-135	FL TUBE	
	FS201	E306805-014	FELT SPACER	
	JA221	EMV7123-033R	CONNECTOR(33PIN)	
	JA222	EMV7123-029R	CONNECTOR(29PIN)	
	JB211	EMV7141-011	CONNECTOR(11PIN)	
	JB221	EMV7123-033	CONNECTOR(33PIN)	
	LP101	EQF0101-002	LOW PASS FILTER	
	TC105	ENZ1003-006	TRIMMER	
	TC201	ENZ1003-015	TRIMMER	
	XT102	ECX0007-200KC	RESONATOR	
	XT103	ECX0000-456KR	RESONATOR	
	XT201	ECX4194-304CF	RESONATOR	

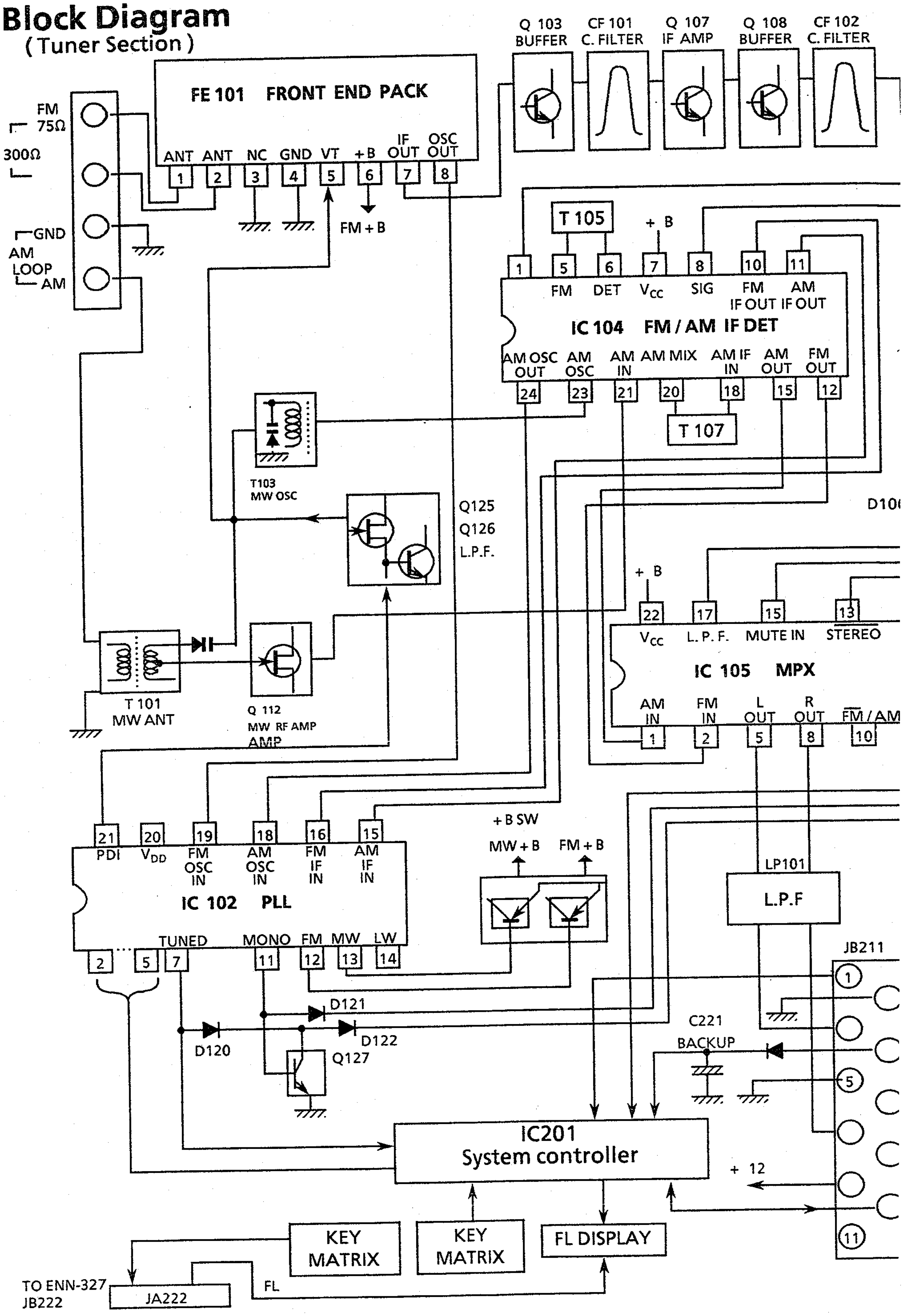
⚠ : SAFETY PARTS

— MEMO —

— MEMO —

Block Diagram

(Tuner Section)



Q 103
BUFFER
CF 101
C. FILTER
Q 107
IF AMP
Q 108
BUFFER
CF 102
C. FILTER
FE 101 FRONT END PACK
ANT
ANT
NC
GND
VT
+B
IF OUT
OSC OUT
FM
75Ω
300Ω
GND
AM LOOP
AM
FM + B
T 105
+ B
FM
DET
V_{CC}
SIG
FM IF OUT
AM IF OUT
IC 104 FM / AM IF DET
AM OSC OUT
AM OSC
AM IN
AM MIX
AM IF IN
AM OUT
FM OUT
T 107
T103
MW OSC
Q125
Q126
L.P.F.
D10
+ B
V_{CC}
L. P. F.
MUTE IN
STEREO
IC 105 MPX
AM IN
FM IN
L OUT
R OUT
FM / AM
T 101
MW ANT
Q 112
MW RF AMP
AMP
PDI
V_{DD}
FM OSC IN
AM OSC IN
FM IF IN
AM IF IN
IC 102 PLL
TUNED
MONO
FM
MW
LW
+ B SW
MW + B
FM + B
LP101
L.P.F
JB211
D121
D122
D120
Q127
C221
BACKUP
IC201
System controller
+ 12
KEY MATRIX
KEY MATRIX
FL DISPLAY
TO ENN-327
JB222
JA222
FL